

*Dover/Kent County MPO*



# **MTP**

## **Metropolitan Transportation Plan 2040 Update**

*Adopted January 2013*



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## 1. Introduction

The Metropolitan Transportation Plan update of 2012 identifies the priorities of the Dover/Kent County Metropolitan Planning Organization (MPO) through the year 2040. It meets the requirement of the MPO at 23 CFR, part 450.322, and the Transportation Conformity Rule requirements of 40 CFR Part 93, Sections 106, 108, 110, 111, 112, 113(b)(c) and 119.

### 1.1 Plan Background

This Dover/Kent County Metropolitan Planning Organization's Metropolitan Transportation Plan (MTP) serves to update the existing transportation plan adopted January 28, 2009. The MPO, in partnership with the Delaware Department of Transportation (DelDOT), our partner communities, and the public, continues to coordinate transportation planning and investments. The MTP horizon year was extended to 2040 to project future land use changes anticipated in the region over the next 28 years.

The MPO's first Long Range Transportation Plan (LRTP) was adopted in 1996. In 2001, the plan was updated through 2025. In 2004, an interim plan extending the planning horizon to 2030 was adopted to comply with federal laws on air quality. The 2004 interim plan supplemented the 2025 plan and served as a companion document until the 2030 update in 2005. The previous plan adopted in 2009 constituted the transportation plan for the region through 2030. This Metropolitan Transportation Plan, expected to be adopted in January 2013, will plan for the region through 2040.

This MTP update was created through a collaborative process involving state, county and local officials, as well as public input. The updated plan reflects changes in demographics as well as regional goals, objectives, policies, strategies, and projects. This MTP update also was initially based upon the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). MAP-21, the most recent federal legislation authorizing transportation funding and policies, was adopted on June 29, 2012. SAFETEA-LU was designed to end with federal fiscal year 2009. Reauthorization legislation was recently created to replace it after Congress approved a series of Continuing Resolutions to continue the funding mechanisms and planning requirements. New requirements established for the next two years by MAP-21 are cited, used in, and for, this document as much as practicable.

Included in previous versions of federal transportation authorizations, urbanized areas with a population greater than 50,000 had to have an MPO. MPOs are responsible for three documents: a 20-year or greater long-range transportation plan (LRTP), a prioritized four-year Transportation Improvement Program (TIP), and a one-or-two-year Unified Planning Work Program (UPWP). MPO's take on other responsibilities, including programs, projects and development in a region, and is required by the U.S. Department of Transportation (USDOT) as a prerequisite for federal funding. The Dover/Kent County MPO's LRTP, the MTP, is a strategic planning tool providing a blueprint for integrating transportation, land use, and Delaware's *State Strategies for Policy and Spending* document to help define and prioritize transportation programs and projects.

### 1.1.1 Relationship of the MTP update to the Kent County Comprehensive Plan

This most recent long-range plan, our Metropolitan Transportation Plan (MTP) update, continues the work with the Kent County Department of Planning Services to implement its transportation priorities included in its comprehensive plan, adopted in 2008. This MTP update confirms the common vision set forth in past Kent County and MPO plans, and is supported by complimentary plan goals and objectives. These guiding principles are confirmed through an assessment of the current transportation system, trends and implications for future transportation needs, and list of actions to be implemented during the 2013 to 2040 time period.

Several initiatives and focus areas had emerged specific to Kent County that represented the common vision that was prepared for the 2009 MTP, and carries forward to this Plan. The concept of relating transportation and land use continues to be a more visible and important consideration when selecting projects that will impact quality of life for current and future generations. As described in the 2008 *Kent County Comprehensive Plan*, land use, growth management, and transportation planning are inextricably linked. As such, the MPO, Kent County and DelDOT continue to collaborate with other state and local agencies to better coordinate transportation and land use decision making. This long-recognized relationship will continue to play an important role in informing infrastructure investment decisions in Kent County and statewide.

The *Kent County Comprehensive Plan Update* focuses on specific opportunities and challenges facing the county and assesses how those trends are likely to impact future growth and preservation. These areas include:

- Population and Demographics
- Land Use
- Community Design
- Community Facilities
- Transportation
- Economic Development
- Housing
- Natural Resources
- Agriculture
- Historic Preservation
- Intergovernmental Coordination

The *Kent County Comprehensive Plan* examines current conditions, articulates goals and describes actions to achieve those goals. The 2008 document examined all elements of Kent County listed above and summarized them into how the county intended to develop and invest over the next 25 to 30 years. Kent County is starting the process of reviewing its *Comprehensive Plan* to ensure it still represents the current interests of the county. The MPO has written the MTP to offer substance to the County Transportation chapter specifically, and to support efforts in the municipalities as well.

### 1.1.2 Strengthening the Linkages between Transportation and Land Use

Continual population growth, expansion of development into lightly-developed areas farther from municipalities, and higher rates of automobile ownership are three primary factors that have led to noticeable increases in traffic congestion and related impacts in Kent County and the United States, which affect quality of life. While building new roads and widening highways can provide some initial congestion relief, such measures are expensive, have environmental and community impacts, might encourage further undesirable growth patterns, and rarely solve congestion problems over the long term. Therefore, rather than continued, widespread expansion of roadways, planning practices that encourage residential construction near most services, interconnected neighborhoods and alternatives to single-occupancy personal vehicles are preferred. Sustainable development trends also help reduce greenhouse gas emissions. Transportation has a large role in realizing the benefits of these sound planning practices.

Sustainable development is not just “smart,” it is essential in order to accommodate growth in ways that will support economic development while maintaining the county’s cultural and natural resources without bankrupting its citizens. In a broad sense, sustainability is viewed as an approach to planning that focuses on the long term — essentially using long-term strategies to best meet present and future needs. In finding this balance, a number of factors are considered, including:

- Preserving quality of life
- Protecting the natural environment
- Preserving rural character and farming traditions
- Growing in a compact manner to preserve open space, clean air and community appeal
- Taking advantage of existing investments in transportation and sewers
- Fostering citizen involvement
- Providing economic opportunity for citizens
- Understanding and shifting away from polluting and wasteful practices

The following factors can be applied during planning, design, construction and operation of the transportation system. Some examples of incorporating sustainability include:

- Increasing collaboration between transportation agencies and other entities responsible for land use, environmental protection and natural resource management to foster more integrated transportation-and-land-use decision making.
- Reconstructing facilities in highly vulnerable locations to high design standards.
- Providing redundant power and communications systems to ensure rapid restoration of transportation services in the event of failure.
- Treating wastewater and runoff in a long-term environmentally-responsible way.
- Using alternatives to road salt and roadside herbicide treatments for weeds that are less harmful to the environment.
- Fostering growth in less environmentally sensitive areas.

The concept of sustainable development is inherent to the plans vision, themes, goals, and objectives discussed in Chapter 2. Coordinated land use and transportation planning requires the participation of all stakeholders. Kent County, the MPO, the county's municipalities, DelDOT, and the State of Delaware must be committed to growth in a coordinated manner. All entities should work together so that land development complies with state land use policies and investment strategies while reflecting local goals and objectives. Understanding the transportation-land-use connection in a local, multi-municipal, and countywide context is critical in determining the extent to which DelDOT will be able to provide future transportation facilities and services to ensure mobility and economic viability. To that end, the MPO has taken a position on the statewide Preliminary Land Use Services (PLUS) review committee to comment on how larger projects conform to this MTP and transportation planning in general. The MPO also has agreed to participate in the City of Dover Development Advisory Committee to offer the same comments on Dover development applications. It is also represented in the three important concepts or policies included in this plan — Complete Streets, Transportation Investment Strategies and Transit-Ready Development.

### 1.1.2.1 Complete Streets

The concept of Complete Streets asks the transportation planner and civil engineer to create a space that serves the several purposes that streets provide, which are roadways to be designed and operated with all users in mind. While there is no single design or “recipe” for what complete streets should look like, such roadways should provide safe access and quality environments for not only motorists, but also pedestrians, bicyclists and public transit users. Users of all ages and abilities should be able to move safely along and across a street. Complete streets can be achieved by requiring that all user groups be considered when new streets are constructed, and when existing streets are expanded, or through the redesign of existing streets with the primary objective of increasing their usefulness for additional user groups. Establishing street design standards that meet the objectives of the complete streets concept is also financially responsible, as it avoids the needs to later retrofit existing streets to accommodate other users.

Delaware, as with many states has taken steps to see such standards are applied to road projects. On April 24, 2009, Gov. Jack Markell signed Executive Order 6 to direct the Department of Transportation to consider the hallmarks of complete streets. DelDOT followed by implementing its policy in January 2010. Further explanation on recommended actions for complete streets is provided in Chapter 5.

### 1.1.2.2 Transportation Improvement Districts (TIDs)

The *Kent County Comprehensive Plan* also introduces the concept of Transportation Improvement Districts (TIDs) to geographically define the developing areas where the transportation system improvements will be required as development continues. The intent of these districts is to create a transportation network where residents can rely upon interconnected local roads for everyday needs, including work, school and recreation. In the 11 TIDs that are currently identified in Kent County, DelDOT, the MPO and the community intend to develop a plan of transportation improvements for each, including road upgrades, interconnection of local roads, and bicycle and pedestrian facilities. The team will estimate the cost of the improvements and distribute them among the parcels developed or created in the future. TIDs in Kent County are intended to be drivable, walkable, safe, and comfortable with part of the corridors able to accommodate future transit service and to assess the charges to newly developed parcels. Additional discussion on how TIDS will be used to focus transportation investments can be found in Chapter 5.

### 1.1.2.3 Transit-ready Development

Transit-oriented development and transit-ready development are two similar concepts, which differ by whether or not transit is already present in the community. While transit-oriented development, or TOD, is built around existing transit stations or corridors, transit-ready development prepares for future transit service with neighborhoods and road networks designed for all transportation modes.

Development centered around transit is typically built in a more compact manner, within easy walking distance of transit stations (on average a quarter mile) that contains a mix of uses such as housing, jobs, shops, restaurants, and entertainment. Similar to TOD, transit-ready development is planning for development that can easily be served by, and will be ready to take advantage of, the markets created by future transit service.

Strategies for transit-ready development also address how new development in Greenfield or existing suburban sites can be adjusted to incorporate transit-friendly concepts. The MPO advocates that new development be designed in a way that allows for future transit accessibility by identifying proposed future corridors for fixed route transit.

The benefits of well-planned transit-ready development are that it creates compact, walkable communities, with direct access to transit. Transit-ready development also interacts with other concepts discussed in this plan such as Complete Streets and Transportation Improvement Districts. To implement Transit Ready Development and provide an example, the MPO initiated a concept plan for the newly-opened Dover Transit Center neighborhood. The Transit Center is the meeting place for all bus routes in Central Delaware, a waypoint for intercounty buses, will be offered to interstate buses when built out, and is adjacent to the railroad line that bisects the City. The MPO partnered with the Downtown Dover Partnership to ensure outreach to the business community for the study area. The neighborhood plan concentrated on an area within approximately ½ mile of the facility. Since the Traditional Neighborhood Development planned for Eden Hill immediately to the west was underway, the study concentrated on the existing neighborhood to the east. The Plan envisioned residential units, retail shops and services, even a hotel, while offering urban design, pedestrian friendly facilities, complete streets and efficient land use to make a TOD neighborhood a possibility.

Key elements of transit-ready communities include:

- A mix of land uses and diversity of housing types, putting services in easy reach of residents
- Pedestrian-friendly layout with sidewalks buffered from traffic by planting strips with street trees
- Appropriate locations and routes for transit factored into future plans
- An "urban" street grid (providing plenty of connections rather than cul-de-sacs)
- Public facilities designed as transit destinations

## 1.2 Overview of the Planning Process and Plan Update

This update to the MTP reviews the assumptions and priorities developed and adopted in 2009 and the activities that were undertaken. The content and focus of this update is similar to the 2009 plan and previous versions, continuing to incorporate key planning principles and policies, along with associated strategies and actions to be pursued by the MPO, DelDOT, and planning partners over the life of this plan.

### 1.2.1 Federal Planning Factors

This MTP update has been developed to comply with federal and state laws, rules, and policies intended to ensure that land use and transportation planning occur in a coordinated and rational manner. The development of this document was guided by USDOT's Federal Planning Factors and the *State Strategies for Policies and Spending*. It is the MPO's intention that it can serve as the transportation portion of the Kent County Comprehensive Plan as a framework for local comprehensive Plans as they are updated, as well.

The Federal Highway Administration's (FHWA's) statewide planning requirements include factors that long-range plans must address. These Planning Factors are contained within the metropolitan and statewide planning provisions of the newest Transportation Authorization, MAP 21. These federal Planning Factors stipulate that long-range transportation plans must:

- Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency
- Increase the safety and security of the transportation system for motorized and non-motorized users;
- Increase the accessibility and mobility of people and for freight
- Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns
- Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight
- Promote efficient system management and operation
- Emphasize the preservation of the existing transportation system

### 1.2.2 Air Quality Analysis

The Clean Air Act, first adopted in 1970, and later amended in 1990, placed significant controls on the planning of transportation programs and facilities.

According to data from the U.S. Environmental Protection Agency (EPA), motor vehicles are responsible for approximately 43 percent of smog-forming volatile organic compounds (VOCs), more than one-half of nitrogen oxide (NOx) emissions, and about one-half of toxic air pollutant emissions in the U.S. Motor vehicles, including off-road vehicles, now account for 90 percent of carbon monoxide (CO) emissions nationwide.

The entire State of Delaware is contained within the Philadelphia-Wilmington-Atlantic City non-attainment area for ozone, based on the 1997 standard. This requires any, or all three counties, (Kent, Sussex and New Castle) to demonstrate that transportation activities are in line with air quality goals (known as "transportation conformity" to the state's air quality implementation plan).

This demonstration must be performed when:

- the existing long-range plan is updated or revised; or
- a regionally significant project is added to the existing or proposed TIP; or
- when the EPA approves a new State Implementation Plan (SIP) that creates or revises on-road mobile source emissions budgets; or
- four years has elapsed since the last determination; or
- a new computer emissions software model is adopted by the EPA

LRTP, TIP and State Transportation Improvement Plan (STIP) approvals are contingent on the successful demonstration of transportation conformity. Approved plans are then authorized to program federal transportation funding for projects within the TIP or STIP. Failure to successfully demonstrate transportation conformity would make the entire state liable to a conformity lapse.

This long range plan update has undergone an air quality analysis for transportation conformity purposes. The MTP’s motor vehicle emissions have been projected for milestone years listed in **Exhibit 1.1** below. The plan is deemed conforming to the state’s air quality implementation plan (SIP) if the projected emissions for volatile organic compounds (VOC) and oxides of nitrogen (NOx) are below the motor vehicle emission budgets adopted in the SIP. The SIP adopted motor vehicle emission budgets for VOC and NOx are 3.95 tons per day and 9.04 tons per day, respectively.

**Exhibit 1.1**  
**Motor Vehicle Emissions Projected in the Long Range Transportation Plan**  
**(Tons per Day)**

2012		2020		2030		2040	
VOC	NOx	VOC	NOx	VOC	NOx	VOC	NOx
2.97	7.56	1.77	3.89	1.40	3.05	1.54	3.55

Additional information about the air quality analysis can be found in Appendix B. To summarize the analysis, the long range transportation plan conforms to the SIP.

**1.2.3 State Strategies for Policies and Spending**

As stated in the 2010 report, *State Strategies for Policies and Spending*, previous governors shaped current state land use policies, starting in the mid 1990s. Governor Markell and the previous governors dating back to this time understood the need for the state to be engaged with local governments in land-use decision-making because of the state’s fiscal responsibilities.

It goes on to describe:

*There were many significant actions that have occurred since the mid-1990’s that have led to a more efficient land-use-planning process, including: the reestablishment of the Cabinet Committee on State Planning Issues; the development of the Preliminary Land Use Service*

(PLUS) process; and the development of the *Strategies for State Policies and Spending*. Also, the local comprehensive planning process was strengthened through legislation that included the creation of a comprehensive-plan certification process, a requirement to implement approved comprehensive plans and other related initiatives.

In 1999, the Delaware Cabinet Committee on State Planning Issues approved the *State Strategies for Policies and Spending (State Strategies)*. It approved the document again in 2004, and in 2011, *State Strategies* was comprehensively updated. *State Strategies* describes Delaware's approach to making the most cost-effective investments in state-funded infrastructure, programs and services as a means of promoting efficient development and eliminating sprawl, protecting the environment and efficiently using natural resources.

The *State Strategies* map shown in **Exhibit 1.2** is a graphic representation of this approach that identifies the areas best suited for the various levels of investment. One of the primary components of the *State Strategies* is the identification and delineation of the State into Investment Levels. Together, the *State Strategies* and the related map guide state agencies as they make their investment decisions, and guide how the state will review and comment on county and municipal comprehensive plans and specific land use decisions. These documents also define how county and municipal governments should coordinate regarding infrastructure and other development. More detail on the 2011 strategies can be found at: [http://stateplanning.delaware.gov/strategies\\_default.shtml](http://stateplanning.delaware.gov/strategies_default.shtml), as well as Chapter 5 of this document.

The *State Strategies* identifies four distinct Investment Levels in each county. Listed below is a brief description of each Investment Level, as well as a discussion of how transportation investment is addressed. All information is taken directly from the *Strategies for State Policies and Spending* document.

**Investment Level 1** “Investment Level 1 Areas are often municipalities, towns, or urban/urbanizing places in counties. Density is generally higher than in the surrounding areas. There are a variety of transportation opportunities available. Buildings may have mixed uses, such as a business on the first floor and apartments above.”

**Investment Level 2** – “This investment level has many diverse characteristics. These areas can be composed of less developed areas within municipalities, rapidly growing areas in the counties that have or will have public water and wastewater services and utilities, areas that are generally adjacent to or near Investment Level 1 Areas, smaller towns and rural villages that should grow consistently with their historic character, and suburban areas with public water, wastewater, and utility services. These areas have been shown to be the most active portion of Delaware's developed landscape. They serve as transition areas between Level 1 and the state's more open, less populated areas. They generally contain a limited variety of housing types, predominantly detached single-family dwellings.”

**Investment Level 3** – “Investment Level 3 Areas generally fall into two categories. The first category covers lands that are in the long-term growth plans of counties or municipalities where development is not necessary to accommodate expected population growth during this five-year planning period (or longer). In these instances, development in Investment Level 3 may be least appropriate for new growth and development in the near term.

The second category includes lands that are adjacent to or intermingled with fast-growing areas within counties or municipalities that are otherwise categorized as Investment Levels 1 or 2. These lands are most often impacted by environmentally sensitive features, agricultural-preservation issues, or other infrastructure issues. In these instances,

development may be appropriate in the near term, but the resources on the site and in the surrounding area should be carefully considered and accommodated by state Agencies and local governments with land-use authority.”

**Investment Level 4** – “Delaware's Investment Level 4 Areas are rural in nature, and are where the bulk of the state's open-space/natural areas and agricultural industry is located. These areas contain agribusiness activities, farm complexes, and small settlements. They are typically found at historic crossroads or points of trade, often with rich cultural ties (for example, unincorporated areas like Star Hill in Kent County). It is the state's intent to discourage additional urban and suburban development in Investment Level 4 Areas unrelated to agriculture and to the areas' needs. This will be accomplished through consistent policy decisions and by limiting infrastructure investment, while recognizing that state infrastructure investments maybe appropriate where state and local governments agree that such actions are necessary to address unforeseen circumstances involving public health, safety, or welfare.”

Implementation of the *State Strategies for Policies and Spending* has been achieved incrementally through several pieces of legislation adopted since the 1980's. In 1987, the Quality of Life Act established the requirement that County governments adopt comprehensive plans. In 1996, the Shaping Delaware's Future legislation indicated that local municipalities were required to adopt comprehensive plans. House Bill 255, signed into law in July 2001, fully implemented these requirements in a number of ways, such as creating the plan certification process, requiring comprehensive plans for municipal annexations, and requiring that local governments change zoning to comply with the plan within 18 months of plan adoption.

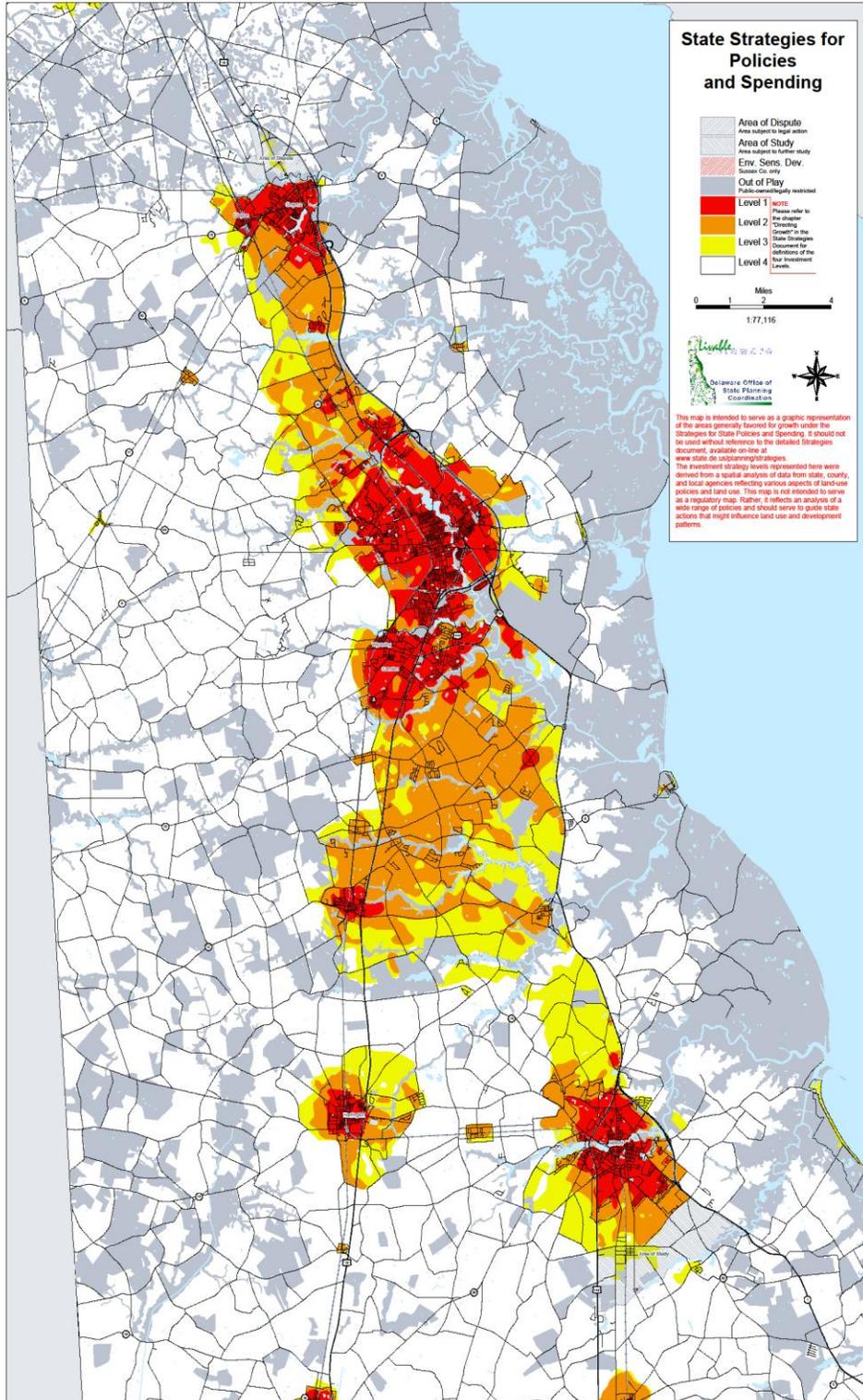
Senate Bill 65, which was signed into law in July 2003, created the Preliminary Land Use Service, or PLUS process. The PLUS process as recently revised provides for earlier reviews of development proposals by all state agencies involved with development approvals. It also enables the state to speak with one voice and to provide more timely and thoughtful reviews. Moreover, it provides for the early consideration of state and local needs associated with development, including those needs related to transportation facilities and services.

The state and county continue to work to implement community development strategies that provide incentives for new growth to occur in desired areas.



*Silver Lake - Dover*

Exhibit 1.2: State Strategies for Policies and Spending for Kent County



Source: Office of State Planning Coordination

### 1.2.4 Corridor Capacity Preservation Program

The Corridor Capacity Preservation Program (CCPP) was established in 1996 to preserve selected existing transportation facilities. CCPP policies support an explicit linkage between land use and transportation through plans working in concert toward the goal of creating a more “livable Delaware.” The program seeks to extend a corridor’s capacity and usefulness without expanding travel lanes. Two corridors in Kent County have been included in the program: State Route 1, south of Dover Air Force Base and U.S. 13, south of DE 10.

The program sets forth five primary goals:

- Maintain an existing road’s ability to handle traffic safely and efficiently
- Coordinate the transportation impacts of increased economic growth
- Preserve the ability to make future transportation-related improvements
- Minimize the need to build an entirely new road on a new alignment
- Sort local and through traffic

By achieving these goals, the program requires that roadway corridor nominations be a part of DelDOT’s Statewide Long-Range Transportation Plan, and that the public has an opportunity to review and comment on roadway nominations. By adopting additional corridors in the program, the county can help ensure that selected roadways will meet their crucial transportation functions in the future, and keep transportation options open before they become limited by development projects.

### 1.2.5 Local Comprehensive Plan Updates

Several municipal comprehensive plans have been completed since completion of the previous MTP in 2009. The updated comprehensive plans of three of the primary municipalities are summarized below:

#### 1.2.5.1 City of Milford Comprehensive Plan

The City of Milford Comprehensive Plan was updated in 2009. The City is currently working on a Comprehensive Plan Amendment. The plan update is based on continued and directed growth; however, it is not intended to promote accelerated growth or to coerce annexation. Amendments continue the plan’s four principles of encouraging a growing and diversified economy, providing appealing and affordable housing, recognizing the Mispillion River as a valuable environmental and economic asset, and promoting the city’s unique look and cultural resources.

The city has developed a Land Use Plan/Annexation Plan since annexation is an attractive option to the city. Regional transportation projects would also be referenced in annexation agreements. The Annexation Plan anticipated annexation requests for approximately 4,500 acres in the 2005 amendment. Within Kent County, approximately 1,800 of the total acres were anticipated for annexation within a five-year planning period. Four anticipated growth areas west, northwest, north, and northeast of Milford were identified.

### 1.2.5.2 City of Dover Comprehensive Plan Update

The Dover Plan: *From the People – For the People* was originally adopted as the 1996 Comprehensive Plan. The plan was updated in 2003 and 2005 due to new growth pressures and development conditions in the city. The plan was also updated to comply with state regulations and allow for annexation of property.

The Comprehensive Plan was updated in 2009. The City of Dover is located within Kent County's Growth Overlay Zone District as delineated in the zoning ordinance. The Annexation Plan notes lands in three categories: 1) identified for annexation, 2) desirable for annexation, and 3) to be evaluated for annexation. Additionally, the "Areas of Concern" are identified.

### 1.2.5.3 Town of Smyrna Comprehensive Plan

The Town of Smyrna Comprehensive Plan was certified in 2006. The 2006 review and amendment to the town's plan provides updated information on existing land use, growth, and development issues, and on population and economic trends. It also updates previous plans by adding an annexation plan element to bring the comprehensive plan into compliance with state planning statutes. The Town is currently updating their Plan.

The principal goals for growth are to achieve a steady rate of planned growth while allowing for the efficient expansion of public services in the urbanized area and ensuring the maintenance of the essential character of the community. Since 2000, approximately 1,075 acres have been annexed north and south of the town within the plan's defined growth area. Further annexation is suggested for areas that are surrounded by the town.

## 1.2.6 Travel Demand Modeling

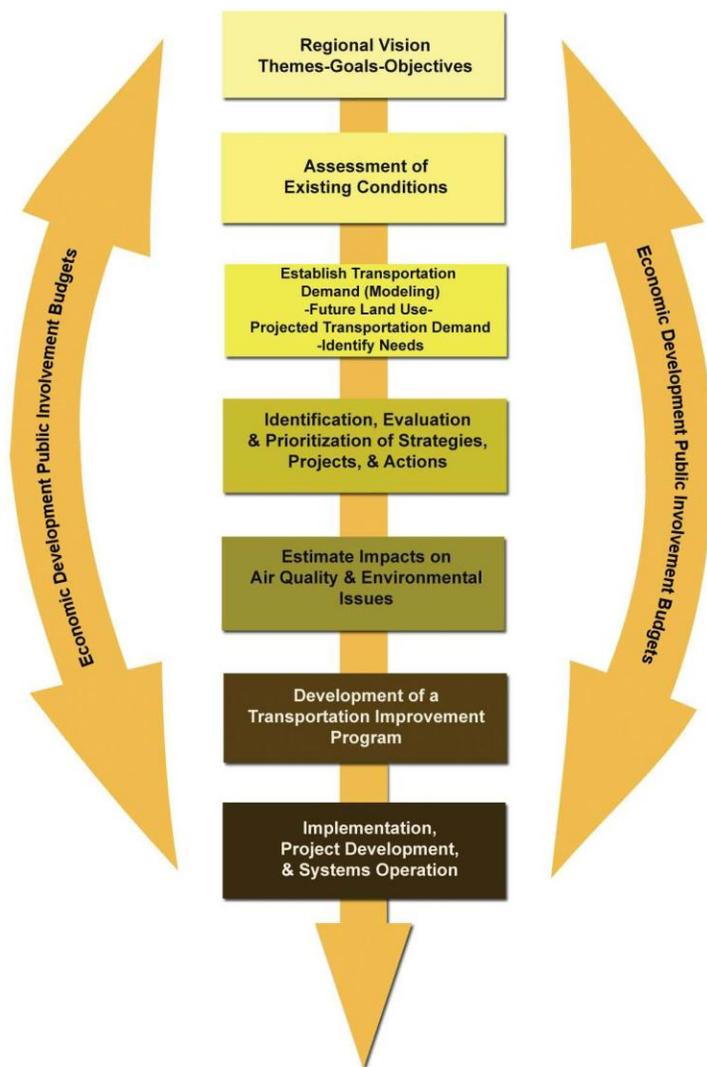
As an update to the MTP, this plan inventories changes in the transportation system between 2013 and 2016 (corresponding with the current TIP years), identifies changes in future needs-based traffic forecasts and expected travel conditions projected by DelDOT's travel demand model, and presents a revised list of actions to attain the common vision that is set forth. The needs assessment is based upon 2011 population and employment estimates from the Delaware Population Consortium. It also reflects input received from various committees within the region, including input from the MPO's Technical and Public Advisory Committees (TAC and PAC), the TAC's Data and Demographic Subcommittee, the MPO Council, and the general public.

The outline of this MTP update reflects the steps taken to prepare this document as well as the basic steps of the long-range planning process. These steps were taken in the development of the 2009 MTP and are consistent with DelDOT's Statewide Long-Range Transportation Plan, last completed in 2010. These steps follow below and in **Exhibit 1.3**.

- Develop a vision for the future based upon input from various community stakeholders.
- Monitor existing conditions.
- Forecast future population and employment growth.
- Assess projected land use in the region and identify the demand for transportation services over a 20-year planning horizon.
- Identify problems and needs associated with various transportation services and improvements.

- Develop capital and operating strategies.
- Estimate the impact of the transportation system on air quality.
- Develop a financial plan.
- Prepare an implementation plan to guide decision-makers with respect to transportation improvements.

**Exhibit 1.3: Transportation Planning Process**



### 1.2.7 MTP Implementation

Funding for the recommended actions is described in a financial plan. This means that the projects programmed for the first four years of the MTP (2013 through 2016) reflect funding that is currently projected to be available through 2016. This first four-year segment of near-term projects is known as the Transportation Improvement Program (TIP). Funding for actions scheduled for years 2016 through 2040 is based on public and private sources that are reasonably expected to be available during that time period. The revenue and cost estimates for the recommended actions use an inflation rate to reflect “year of expenditure” dollars.

Additional projects the MPO desires, for which funding is not expected to be available, are included in an “aspirations” list and will only advance when additional funding becomes available. These projects will likely be considered in future plans.

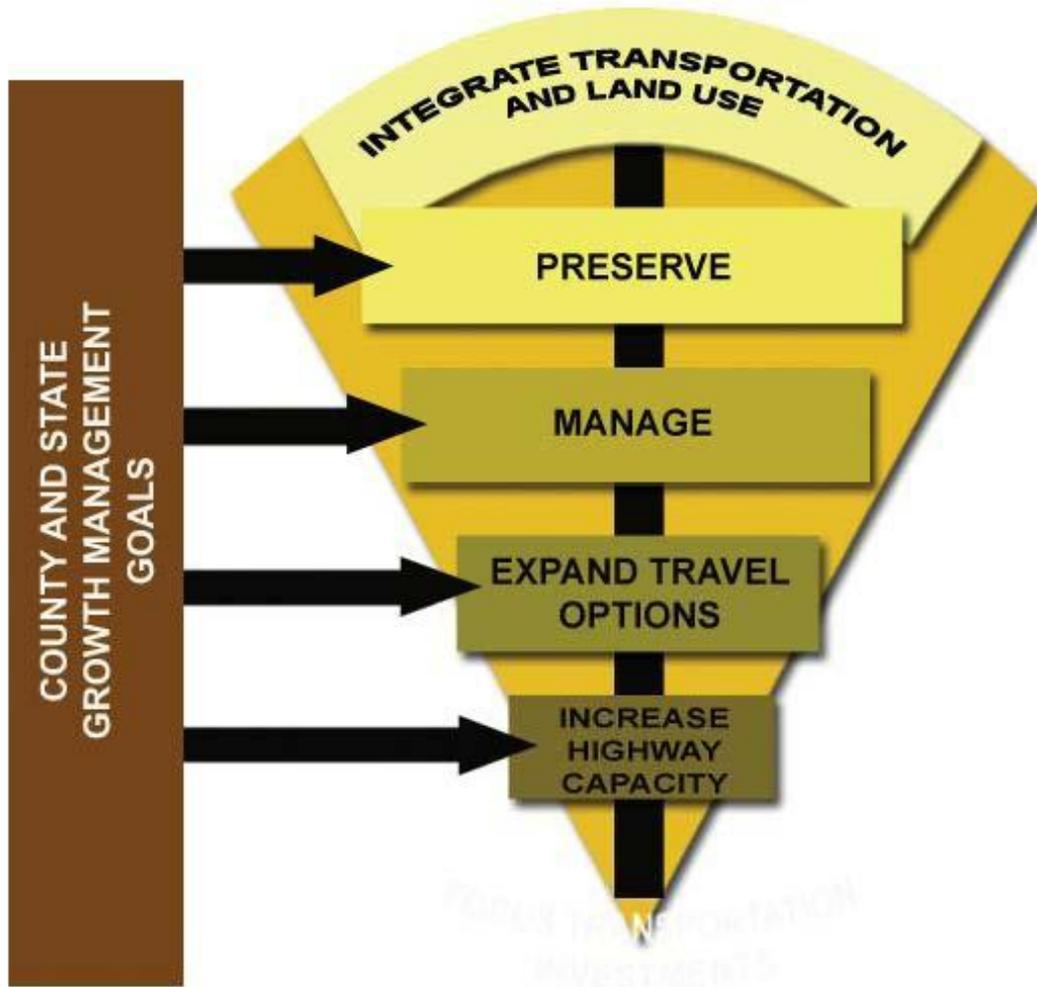
### 1.3 Relationship between the Plan’s Vision, Themes, Goals Objectives, Strategies and Actions

There is no one policy, project, or action that will meet all the future needs of the planning area. Rather, the fundamental strategies outlined in this update will serve to guide decision-making for transportation investments. This approach is aligned with the *Strategies for State Policies and Spending* and the county’s and municipalities’ comprehensive plans. The policies articulated in all plans, including this plan, set up a hierarchy for making future transportation investments and are related to the Federal Planning Factors. The strategies, as referenced in **Exhibit 1.4**, are:

- Preserve the existing system to meet adopted standards of “good repair”
- Manage the system to meet adopted performance measures
- Expand travel options beyond the private automobile.
- Increase the highway system capacity where needed.
- Focus transportation investments so they match county and state growth and development goals

These strategies will continue to provide the basis for project identification and evaluation and all other actions. The actions are multimodal, including transit, bicycle and pedestrian facilities, aviation and rail facilities, and highway improvements. They are intended to complement one another to provide an efficient transportation system that offers a wide range of options.

Exhibit 1.4: MTP Strategies



## 2. The Vision

### 2.1 2040 Vision — “Moving Forward Together”

The vision statement has remained fundamentally unchanged since the MPO’s first plan was adopted in 1996. Most changes have evolved from federal requirements rather than shifts in community vision. The vision still revolves around safety and security, quality of life, economic development, and access and mobility.

The MTP vision statement was reviewed in light of the Kent County Comprehensive Plan’s vision statement, just as the areas of emphasis and policy recommendations provided in the Comprehensive Plan were considered as the MTP recommendations were updated. Both plans focus on creating and maintaining sustainable communities and preserving the natural resources that contribute to the county’s unique character. When considered together, both plans serve to direct public investment in infrastructure in a manner that protects resources while allowing for economic opportunity.

#### 2040 Vision — “Moving Forward Together”

*The future transportation system in the Dover/Kent County metropolitan region is safe for users, supports economic development, allows easy access and mobility for people and goods to reach their destinations, and serves desired growth patterns. The transportation system serves the public’s needs, simultaneously reinforcing the unique character and quality of life of each community while preserving the region and its natural resources.*

The MTP’s Vision is categorized into five major themes or principles around which the goals and objectives are based:

- Economic Development
- Quality of Life
- Growth Management/Land Use Coordination
- Access, Safety, Security, and Mobility
- Transportation Network (Infrastructure)

### 2.2 Themes, Goals, Objectives

#### **Theme 1: Economic Development**

**Goal: Strengthen the local economy**

**Objectives:**

- **Support business retention** and creation of high quality employment by investing in transportation improvements.
- **Provide businesses with adequate access to labor** by encouraging affordable, multimodal transportation options.

- **Reduce the expense and time delays of shipping and receiving freight** by enhancing access to retail and industrial areas and improving the interconnectivity of all modes of the transportation network.
- **Ensure community cohesion** by making appropriate connections between developed areas and targeted growth areas for new development.

### Theme 2: Quality of Life

#### Objectives:

- **Protect, preserve, and enhance natural, historic, and cultural resources** by managing the existing transportation system and making transportation investments that protect, preserve, and enhance these valued community resources.
- **Support healthy lifestyles, choices, and opportunities** by providing facilities such as sidewalks, multi-use paths, and bikeways as part of both transportation and land development projects.
- **Promote context sensitivity** by developing transportation improvements that minimize environmental impacts and promote improved quality of the environment.
- **Enhance aesthetic value** by incorporating aesthetic and non-vehicular improvements in transportation investments.
- **Reduce air, water, and noise pollution** by accommodating less-polluting travel options such as walking, bicycling, transit, and use of alternatively-fueled and low emission vehicles.

### Theme 3: Growth Management/Land Use Coordination

**Goal: Support desired land use and effective growth management.**

#### Objectives:

- **Support the desired land use patterns** identified by the county and municipalities through their efforts to develop and update their comprehensive land use plans that identify regional growth boundaries.
- **Improve coordination between land use and transportation planning** and project development in order to establish and maintain a transportation network that supports anticipated needs within growth areas.
- **Foster growth and development** by providing a variety of safe, convenient, and affordable transportation alternatives that support preservation of agricultural lands, open space, and other valued community resources.
- **Provide transportation alternatives** by planning, designing, and implementing an integrated transportation network.

**Theme 4: Access, Safety, Security, and Mobility**

**Goal: Improve access and mobility while ensuring the safety and security of all citizens.**

**Objectives:**

- **Improve mobility** by reducing dependence on a single mode of transportation.
- **Provide an integrated transportation system, enhancing accessibility and mobility** by including interconnected modes of travel including transit, pedestrian and bicycle facilities, car, truck, commuter rail, and freight.
- **Provide access to transportation services for people with special needs** (*disabled, elderly, etc.*) by making system enhancements and expanding services.
- **Improve accessibility, mobility, and safety** by prioritizing the maintenance and improvement of heavily-utilized corridors to enhance the free flow of goods and people.
- **Improve safety** by expanding driver training and safety awareness.
- **Enhance security** by taking actions to ensure the uninterrupted operation of vital transportation services.

**Theme 5: Transportation Network (Infrastructure)**

**Goal: Safely and efficiently transport people and goods.**

**Objectives:**

- **Preserve and enhance the existing transportation infrastructure** by focusing on facility maintenance and enhancement to maximize its performance, capacity, and life cycle.
- **Promote the use of technology to enhance the transportation system** by planning, designing, and implementing innovative transportation solutions.
- **Ensure adequate transportation facilities** by making safety and capacity improvements an essential aspect and prioritizing maintenance of the transportation network, for all users.
- **Establish aesthetically pleasing and cost-effective transportation facilities** by utilizing innovative techniques and materials that result in context-sensitive solutions that require minimal maintenance.
- **Direct or focus transportation investments** in a manner that supports the implementation of the comprehensive plans.
- **Direct or focus transportation investments** by using Transportation Improvement Districts (TIDs) to promote sustainable development within these designated areas.

These themes or principles provide the basis for a regional vision of a safe, efficient, and affordable transportation system. The vision, supported by regional goals and objectives, provides a description of a desired setting for the future of the region. This setting provides the basis for decision-making in the metropolitan area with respect to transportation and land use. **Exhibit 2.1** illustrates how the vision, themes, goals, objectives, strategies, and actions are linked to each other.

Exhibit 2.1: MTP 2040 Vision



### 3. Current Transportation System Overview

This chapter includes an assessment of Kent County's existing transportation system, the baseline for identifying future transportation investment needs. Various elements of the County's transportation system are reviewed by mode. This chapter presents the changes that have occurred since the adoption of the previous Metropolitan Transportation Plan in 2009.

Elements of the system include roads, bridges, public transportation, bicycle and pedestrian facilities, railroads, aviation, and marine facilities. Where applicable, the Plan compares the County's transportation system with Delaware's overall system.

The Highway Performance Monitoring System (HPMS) is a national database that assists metropolitan planning organizations and other government agencies in assessing highway conditions, performance, air quality trends, and investments for the functional classification of roads. These standards help assess the conditions and needs of the county's highways.

In addition, this chapter provides an overview of the land use characteristics within Kent County.

#### 3.1 Existing Land Use

Existing land use data indicates that Kent County is comprised of predominantly agricultural and environmentally sensitive land, as seen in **Exhibit 3.1**. These two categories occupy 79 percent of the county's land use. Single-family residential use also composes a relatively significant amount of acreage in Kent County. **Exhibit 3.2** shows where the different types of land use reside in the County. As shown, commercial and mixed land uses are concentrated in municipalities and along major highways such as U.S. 13 and U.S. 113.

#### 3.2 Current Land Use

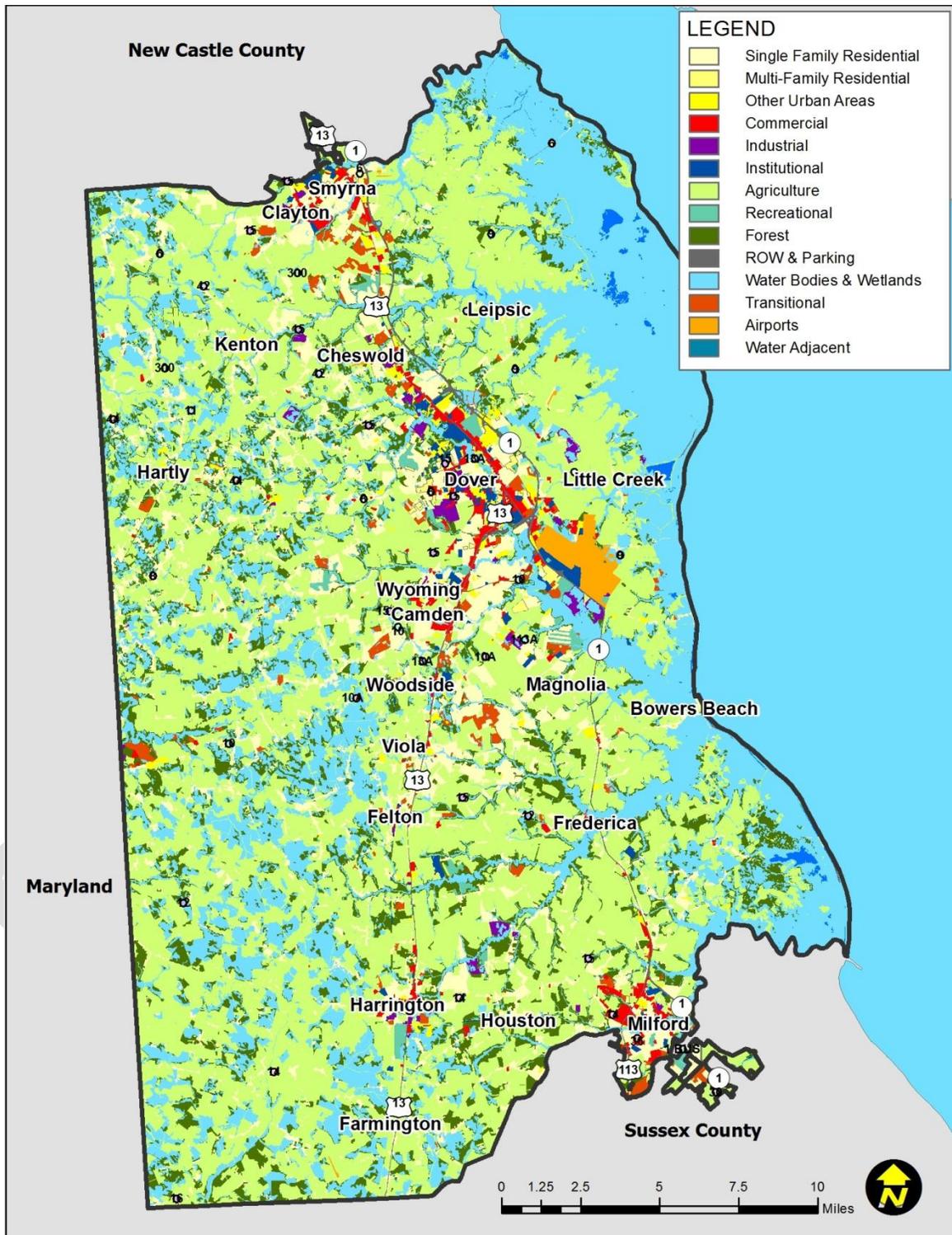
Kent County's growth slowed compared to the rate of development recorded in the *2009 Regional Transportation Plan* and the *Kent County Comprehensive Plan*. As of September 2012, the County has approved 2,980 residential permits since 2007. The nationwide downturn in the real estate market significantly slowed development in the County and cut the number of development requests. Between 2008 to the present, the City of Dover has approved 94 residential permits and 15 commercial permits within City limits. During the same time period, the Town of Smyrna, one of the most rapidly-growing areas of the state, recorded 610 residential lots and 7 new commercial lots. Permit approvals are a more likely indicator of imminent development, as recordation doesn't necessarily equate to actual construction in the foreseeable future. Kent County subdivision locations are shown in **Exhibit 3.3**. This exhibit only includes subdivisions that have been built within Kent County jurisdiction. Subdivisions within municipal limits are not shown.

Exhibit 3.1: Existing Land Use

Land Use	Acres	Percent of Total
Agriculture	203,045	40.0%
Wetlands and Waterbodies	196,369	38.7%
Single-Family Residential	42,915	8.5%
Forest/Wooded	38,388	7.6%
Commercial	4,989	1.0%
Transitional	4,039	0.8%
Other Urban	3,644	0.7%
Streets/Right-of-Way	3,459	0.7%
Government/Institutional	2,315	0.5%
Airports	2,174	0.4%
Public Open Space	2,091	0.4%
Industrial	1,804	0.4%
Adjacent to Water	1,455	0.3%
Multi-family Residential	1,096	0.2%
Common Parking	13	0.01%
<b>Total</b>	<b>507,798</b>	<b>100.0%</b>

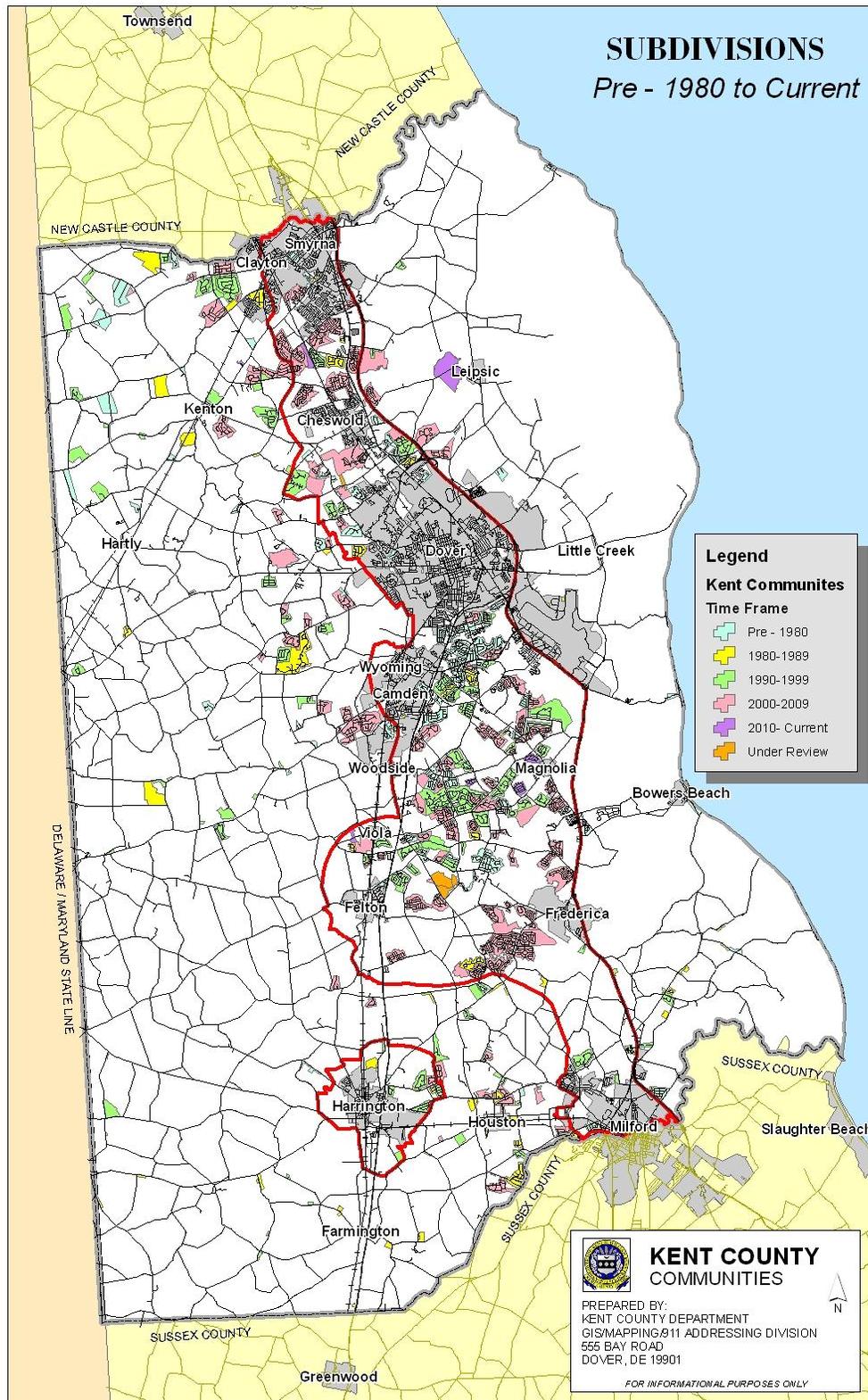
Source: Office of State Planning Coordination

Exhibit 3.2: Kent County Existing Land Use (2007)



Source: Office of State Planning Coordination

Exhibit 3.3: Kent County Subdivision Locations



Growth in Kent County has outpaced infrastructure investment from all sources, however. Many of the local roads within growth areas are not currently improved to their functional classification standard. Before additional development is approved, the County, in conjunction with DelDOT and the MPO, should develop a plan for upgrading roads to their identified functional classification.

The Kent County Comprehensive Plan has put an emphasis on providing adequate infrastructure as well as a variety of nonresidential services, both public and private, for existing, planned, and anticipated residential development within growth areas. The County placed an emphasis on further refining the County's growth boundaries to serve two primary purposes: (1) efficiently directing public investments in infrastructure of all types, and (2) protecting the County's agricultural industry and natural resources from encroaching development.

Individual plans and ordinances control the current land use in municipal jurisdictions in Kent County. Dover has had new growth pressures and development conditions since the 1990s and the MPO and DelDOT have worked with the City to identify transportation improvements needed to accommodate these new developments. The Route 8 Concept Plan and Operations Study identified potential development and redevelopment plans along this corridor. This area is within the Corridor Overlay Zone described in the City of Dover's Zoning Ordinance. The Camden Comprehensive Plan identified areas of potential development expansion to the south of Camden along U.S. 13A and Route 10. Camden's close proximity to Dover makes it likely that development will occur between the town and city. The land use along U.S. 13 will continue to experience pressure for commercial development. The Town of Smyrna has also recently experienced significant growth, particularly along its southern end near Brenford Road.

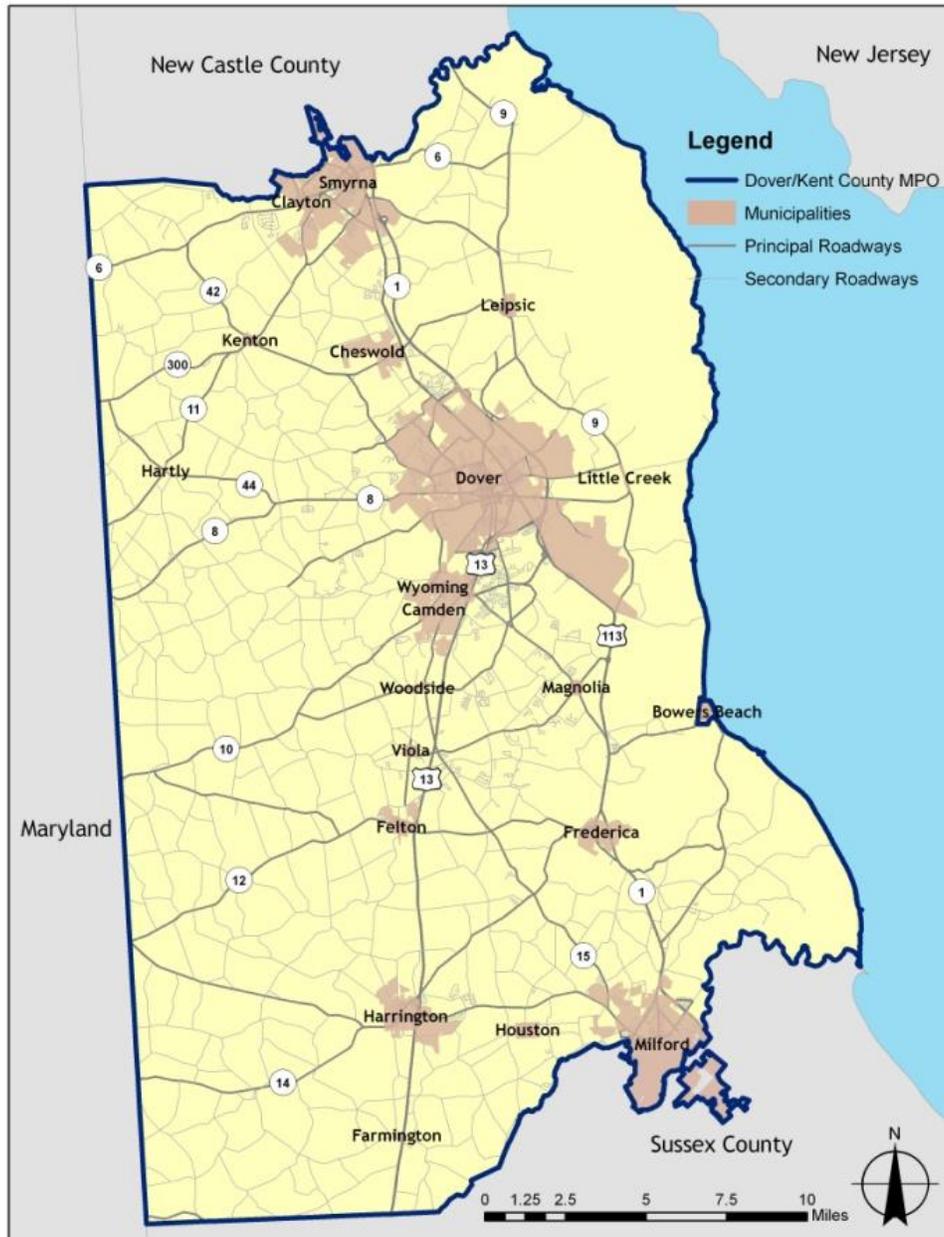
The DelDOT Corridor Capacity Preservation Program is designed to maintain the regional importance and preserve the capacity and function of existing participating routes. The program is designed to maintain an existing road's ability to handle traffic efficiently and safely. Currently Route 1, U.S. 13, and U.S. 113 in Milford are routes within the MPO area that are included in the program. The goals of the program are accomplished through preventing additional new entrances and driveways, minimizing the need for traffic signals, and providing for local service roads. The program relies on the purchase or dedication of access rights, purchase of development rights, fee simple acquisitions, and roadway improvements such as grade-separated intersections as implementation methods.

The Kent County Comprehensive Plan introduces the concept of Transportation Improvement Districts (TIDs, further discussed in Chapter 5 as a means of encouraging growth in specific areas where comprehensive, multimodal transportation system improvements may be developed as part of a master land use and transportation planning effort.

### 3.3 Roads and Bridges

There are 12 State designated routes in Kent County. They are Del. 1, 6, 8, 9, 10, 11, 12, 14, 15, 42, 44, and 300. U.S. Routes 13 and 113 (also called Bay Road) additionally run through central Delaware. These routes connect municipalities in Kent County, and provide access to New Castle and Sussex counties, as well as to the state of Maryland, as seen in **Exhibit 3.4**.

**Exhibit 3.4: Kent County Roadways**



*Source: DelDOT Planning*

According to DelDOT reports, Kent County accounts for about 24 percent of the total route miles<sup>1</sup> in the state. New Castle and Sussex counties comprise the balance of the state, as seen in **Exhibit 3.5**. In 2011, Kent County had 1,526 route miles and 3,214 lane miles<sup>2</sup> of roadway, as seen in **Exhibit 3.6**. This is an increase from the 1,459 route miles and 3,074 lane miles the county had in 2006.

**Exhibit 3.5: Roadway Route Miles and Density by County (2011)**

	Route Miles	Area (Sq. Miles)	Roadway Density
New Castle County	2,480	426.29	5.82
Kent County	1,526	586.18	2.60
Sussex County	2,352	936.08	2.46
State of Delaware	6,358	1,948.54	3.26

1 Length of roadway, regardless of the direction or number of lanes

2 Length of roadway, where every lane counts separately in mileage calculation

**Exhibit 3.6: Kent County Roadway Mileage by Functional Classification (2011)**

Functional Classification	Route Miles	Percent of Total	Lane Miles	Percent of Total
Freeway and Expressway	20	1.3%	85	2.6%
Other Principal Arterials	37	2.4%	149	4.6%
Minor Arterials	116	7.6%	289	9.0%
Collectors	269	17.6%	538	16.7%
Local	1,084	71.0%	2,153	67.0%
Total	1,526	100%	3,214	100%

### 3.4 Functional Classification

Functional classification is a system of categorizing roadways based on their character, purpose, and function. Functional classification determines the design standards for a roadway, and provides a means of identifying where roadways need improvement to meet design standards.

The Delaware Department of Transportation (DelDOT) updated the county's functional classification system, which the Federal Highway Administration (FHWA) approved in December 2005. Classifications include Interstate, freeways and expressways, other principal arterials, minor arterials, major and minor collectors, and local routes. Except for Interstate highways, Kent County's roadways include all classifications. The MPO's Data and Demographics subcommittee is currently working to update the Urbanized Area and potentially revise the functional classifications for Kent County roads. This work was ongoing as of the publication of the MTP and is anticipated to be completed in 2013. The descriptions of functional classifications are as follows:

- **Interstate** – Interstate routes are part of the National System of Interstate and Defense Highways. These are high-speed, primary travel routes connecting metropolitan areas, cities, and industrial centers. Interstate routes do not directly provide access to adjacent land, interconnecting instead primarily with other higher classifications of routes. As stated, Kent County has no Interstate highways.
- **Other Freeways and Expressways** – Routes designated as other freeways and expressways are only present within urbanized areas. These roads are high-speed, primary travel routes that serve metropolitan cities and industrial areas. Freeways and expressways interconnect primarily with other higher classifications of routes, such as Interstates. Freeways and expressways in Kent County include Route 1 in the urbanized areas, and make up 1.3 percent of the county's roads.
- **Other Principal Arterials** – Principal arterial routes serve major centers of activity and urban areas. They are the highest traffic volume corridors with long trip lengths, and are links between the higher and lower classifications. Principal arterials generally allow access to adjacent properties, possibly with regulated access. Kent County has approximately 37 route miles of principal arterials, representing 2.4 percent of the county's roads.
- **Minor Arterials** – Minor arterials are routes that interconnect principal arterials and provide access to smaller developed areas linking cities and towns. Minor arterials in Kent County include Del. 8, Del. 15, Del. 14, Del. 10A, portions of U.S. 13 and U.S. 13A, Del. 44, and Del. 300. These routes comprise 7.6 percent of roadways in Kent County.
- **Collectors** – Collector routes are divided into major and minor routes. Major collectors are present in urbanized areas, while minor collectors are only present in rural areas. Collector routes provide land access and collect traffic from lower classification roadways, channeling them to the higher classification roadways. These routes comprise the majority of State Routes in the county, making up 17.6 percent of the county's roadways.
- **Local** – Local routes provide direct access to land and links to the higher classification routes. Local routes have the lowest volumes of traffic and short trip lengths. These routes consist of all roads not designated at higher classifications. Kent County had 1,084 miles of local roads in 2011. The majority of roads, 71 percent of those in the county, are classified as local. **Exhibit 3.7** illustrates route miles and annual vehicle miles traveled (VMT), by functional class in Kent County as of 2011. The amount of freeways and expressways and minor arterials increased between 2006 and 2011 while the other categories showed decreases. **Exhibit 3.8** displays the Functional Classification map for Kent County.

Exhibit 3.7: Roadway Functional Classification by Route Miles and Vehicle Miles Traveled (VMT)

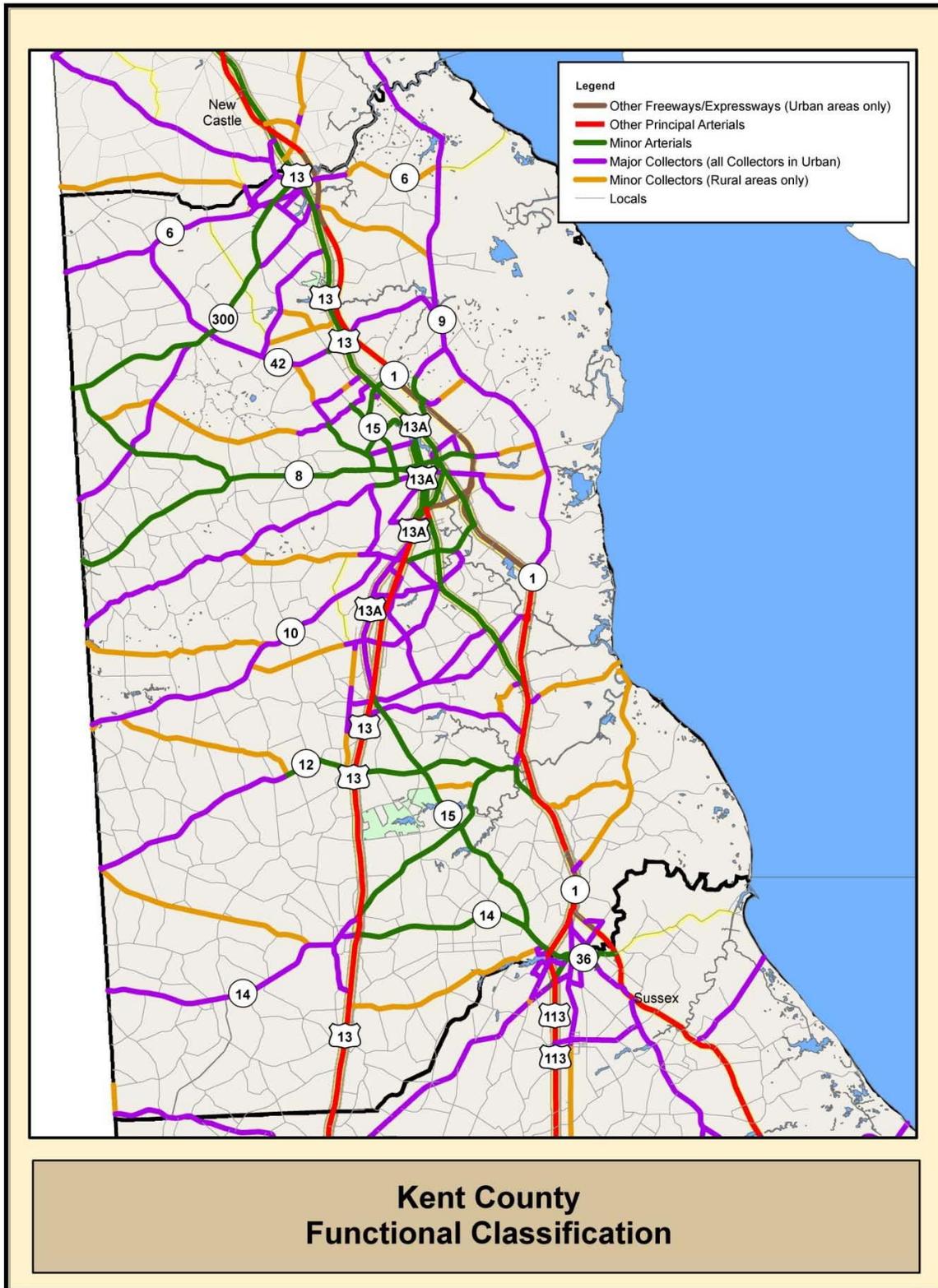
Functional Classification	Route Miles			VMT (millions)	
	2006	2011	% of Total (2011)	2011	% of Total
Freeway & Expressway	17	20	1.3%	614	14.0%
Other Principal Arterials	43	37	2.4%	1186	27.0%
Minor Arterials	106	116	7.6%	1306	29.7%
Collectors	275	269	17.6%	703	16.0%
Local	1,018	1084	71.0%	582	13.2%
<b>Total</b>	<b>1,459</b>	<b>1,526</b>	<b>100%</b>	<b>4,391</b>	<b>100%</b>

Source : DelDOT and U.S. Census Bureau



Route 10 - West of Dover Air Force Base

Exhibit 3.8: Functional Classification Map



Source: DelDOT

**3.5 Daily Traffic Volumes (AADT)**

Annual average daily traffic (AADT) on roadway segments is another indicator of traffic conditions. This indicator reflects the operations and performance of specific roadways. DelDOT has a system of permanent automatic traffic counters at locations throughout the state and publishes an annual report of the AADT's on all state roadway segments. Listed below in **Exhibit 3.9** is a sample of some of the permanent counter data throughout Kent County, for 2006 and 2011.

**Exhibit 3.9: Permanent Traffic Counter Data**

COUNTER	ROAD	LOCATION	AREA	2006	2011
8036	U.S. 13	Smyrna Rest Area	Smyrna	21,147	22,291
8040	U.S. 13	Dover Downs	Dover	56,662	50,027
8060	U.S. 13	Court Street	Dover	24,945	24,899
8041	Road 88 (Leipsic Road)	Northeast of Dover	Dover	1,600	1,542
8042	Route 15 (Wyoming Mill Road)	Southwest of Dover	Wyoming	7,677	7,952
8043	Route 8	West of Dover limits	Dover	11,697	11,105
8044	Road 12 (Smyrna Leipsic Road)	North of Leipsic	Leipsic	777	821
8045	Route 9	North of Leipsic	Leipsic	566	641
8050	Route 10	West of DAFB	Camden	19,560	17,236
8051	Route 1	Dover Toll Plaza	Dover	35,594	34,743*
8091	Route 1	North of Frederica	Frederica	39,643	38,968*
8061	U.S. 113	Court Street	Dover	22,751	22,458
8062	U.S. 113	Milford Bypass	Milford	20,831	20,184*

*Source: DelDOT Traffic Summary  
\*2009 Data*

It is worth noting that the AADT for the majority of these selected locations decreased during the 5-year comparison period. The Department identified similar decreases in traffic volumes on some of the other primary routes throughout the state during this time period, including I-95 in New Castle County. This can likely be attributed to the severe economic downturn that began in 2007-2008 and continued through 2011. Due to the jobs lost in the recession, there were fewer employees traveling to work, which directly contributed to lower traffic volumes on these routes (both personal vehicles as well as commercial vehicles).

The actions and strategies identified in the MTP are not directly impacted by the slight decreases in traffic volumes that occurred between 2006 and 2011. The actions and strategies are still applicable solutions to address the

projected transportation conditions of the region. The MTP, being a long range evaluation and projection of anticipated transportation conditions through 2040, is based on trends that have occurred over the previous 20 years. Based on those previously identified trends, as well as projected land use, traffic volumes are not expected to continue to decrease. In fact, as detailed in Chapter 4, vehicle miles traveled in Kent County are estimated to increase by 68% between 2012 and 2040. This will be particularly evident as the economy rebounds and unemployment rates continue to decrease, as they have done consistently throughout 2012. Chapter 4 provides additional details on projected traffic conditions and annual vehicle miles traveled by 2040.

### 3.7 Customer Satisfaction Survey/Public Opinion

DelDOT routinely conducts a Customer Satisfaction Survey of the traveling public, including businesses that ship and receive goods, to determine how well the Department is meeting transportation needs. The survey considers all modes that move people and goods. These survey results are used to better understand what features of the transportation system are most important to system users. In addition to trends and analysis, the survey helps to identify the needs of system users. This section reviews the satisfaction of Kent County residents and their opinions as compared to the rest of the state.

Customer Satisfaction Surveys were first conducted in 1997 and are repeated regularly to obtain trend data. The survey data are used as inputs into the Department's progress monitoring program. In 2009, the latest available, four different user groups were surveyed as part of this study. These user groups represent some of the different customer segments served by the Department. The first and largest survey, known as the General Transportation User Survey, was a random statewide telephone survey of 1,216 Delaware residents age 16 years and older. This survey was conducted in each of the previous survey years.

All respondents were asked to rate Delaware's transportation system as a whole, and the 2009 results indicate that 85 percent of Kent County respondents think that the transportation system as a whole is meeting their needs "very well" or "somewhat well." This is higher than the 2006 survey results, which indicated that 81 percent of Kent County respondents feel the transportation system is meeting their needs "very well" or "somewhat well". **Exhibit 3.10** shows the data by county of residence.

**Exhibit 3.10: Satisfaction Level by Transportation Type (2009)  
General Transportation User Survey**

	New Castle		Kent		Sussex	
	Very or Somewhat Well	Not Too or Not at All	Very or Somewhat Well	Not Too or Not at All	Very or Somewhat Well	Not Too or Not at All
<b>Roadways</b>	91%	9%	91%	10%	94%	6%
<b>Transit</b>	77%	18%	73%	20%	100%	0%
<b>Bicycle</b>	88%	13%	73%	17%	47%	54%
<b>Pedestrian</b>	71%	29%	69%	32%	60%	40%
<b>Overall</b>	83%	16%	85%	16%	79%	21%

*Source: DeIDOT Customer Satisfaction Survey*

**Mode Choice**

The University of Delaware completes an annual analysis of transportation mode choice, based on public survey results. The results for Kent County are shown in **Exhibit 3-11** below, based on 2010 data.

**Exhibit 3-11: Transportation Mode Choice**

Mode	All Trips (2010)	Work Trips (2010)
Drove Alone	90%	97%
Passenger	7%	2%
Bus	2%	1%
Walked/Biked/Other	1%	0%

**3.8 Surface Type and Lane Width**

Surface type and lane width are two important physical characteristics of roadways. Kent County’s roadways have several different types of surfaces, ranging from unpaved to Portland cement concrete pavement. Pavement design is typically a function of volume, truck percentage, and life cycle costs. The majority of the county’s arterial and major collector roads have concrete pavement or a combination of concrete pavement with a hot-mix overlay. The majority of minor collector roads, local roads, and suburban development streets have a flexible hot-mix or surface treatment.

Design, speed, traffic type (particularly when trucks are present), the environment or context of the road’s location, and available sight distances help determine travel lane widths. **Exhibit 3.12** presents a representative sample of lane width by functional classification for 2012. Road width has less impact on safety in general when traffic is slower. The faster traffic moves, however, the greater the impact on safety. Wider lanes give motorists more recovery room if they lose control of their vehicles at higher speeds. Wider lanes also can entice motorists to drive faster than they would on narrower roads.

Lane width can correspond with safe interaction among motor vehicles, pedestrians and bicyclists. Wider lanes provide more space and reduce the level of friction that passing bicyclists create. A wider lane increases the amount of time needed for a pedestrian to cross a road.

In summary, when designing and building roads, it is vital to strike a balance with lane widths to keep roads safe for everyone. Lanes should allow motorists room for traffic flow and control recovery, yet keep speeds low enough for safety while accommodating bicyclists and pedestrians. In road design, the formula for building pedestrian crossings is four feet per second. Wider intersections, however, should have refuges at the center for pedestrians and bicyclists to safely stop.

**Exhibit 3.12: Kent County Lane Width by Functional Classification (2012)**

Functional Class	Percent of Lane Miles					
	< 9' Wide	9' Wide	10' Wide	11' Wide	12' Wide	> 12' Wide
Interstate/Freeway	0	0	0	0	39	61
Other Principal Arterials	0	0	0	0	38	62
Minor Arterials	0	0	13	7	61	17
Major Collectors	0	3	26	47	12	14
Minor Collectors	0	13	36	49	0	2
Local	3	19	43	15	4	16
Subdivision	2	1	10	61	6	20

Source: DelDOT

3.9 Pavement Conditions

DelDOT's Pavement Management Section collects data on the condition of state and federally funded highways to establish rehabilitation priorities. Priorities are based on overall pavement condition, road functional class, annual average daily traffic, coordination with other construction projects, and the presence of schools, hospitals, transit routes, and other crucial public services.

DelDOT uses industry-wide measures and rating techniques to monitor the physical condition of its roads. The two key attributes of roadway conditions are rideability and surface distress. Rideability relates to comfort or smoothness felt while riding on a road. Surface distress relates to visible problems, such as cracks and potholes.

Overall Pavement Condition (OPC) is DelDOT's key indicator of rideability and surface distress. OPC is based on 25 percent rideability and 75 percent surface distress. Good roads have an OPC rating of 60 or greater. Poor roads have an OPC rating of 50 or less. Furthermore, the state uses special "trigger values" when a segment of road requires special attention. Local roads have a trigger value of 50. Expressways have a higher OPC trigger value of 70.

Exhibit 3.13: Pavement Conditions in Kent County, 2010

Functional Class	Total Lane Miles	Good		Fair		Poor		Meets Trigger Value	
		Lane Miles	%	Lane Miles	%	Lane Miles	%	Lane Miles	%
Freeway/ Expressway	45.73	43.64	99.8%	0.05	0.1%	0.04	0.1%	5.39	12.3%
Principal Arterial	83.09	42.29	50.9%	21.96	26.4%	11.84	14.2%	31.81	38.3%
Minor Arterial	124.14	103.52	78.3%	25.9	19.6%	2.75	2.1%	28.65	21.7%
Collector	271.19	209.03	77.1%	47.73	17.6%	14.43	5.3%	62.16	22.9%
Local	647.24	525.54	81.2%	105.46	16.3%	16.24	2.5%	16.24	2.5%
Suburban	165.56	141.12	85.2%	14.38	8.7%	10.06	6.1%	NA	NA
<b>Total</b>	<b>1,342.98</b>	<b>1,065.14</b>	<b>80.1%</b>	<b>215.48</b>	<b>16.2%</b>	<b>55.36</b>	<b>3.6%</b>	<b>144.25</b>	<b>12.3%</b>

Source: DelDOT

**3.10 Bridges and Bridge Conditions**

In 2012, Kent County had 361 bridges, an eight-percent increase since 2007 when the County had 334 bridges. Of the 361 bridges, 193 are 20 feet or longer, and are included on the National Bridge Inventory. Ten bridges are considered eligible for inclusion on the National Register of Historic Places.

**3.11 Structural Deficiency and Functionality**

In 2012, DelDOT identified 33 Kent County bridges as structurally deficient. A structurally deficient structure does not necessarily require an immediate repair action or a road closing. However, structurally deficient bridges require an increased inspection frequency, and the bridge would be planned for rehabilitation or replacement, depending on the deficiency rating. A functionally obsolete bridge refers to deck geometry, load carrying capacity, clearance, or roadway approach alignment that no longer meets current design criteria.

**Exhibit 3.14** shows bridge conditions in Kent County from 2007 to 2012. The number of structurally deficient bridges continues to increase as the rehabilitation of structurally deficient bridges has reduced the number of functionally obsolete bridges in that time period. The number of functionally obsolete bridges has remained approximately four percent. Compared to the state overall, Kent County has a higher percentage of structurally deficient bridges, yet the state has nearly three times the percentage of functionally obsolete bridges, as seen in **Exhibit 3.15**.

**Exhibit 3.14: Kent County Bridge Inventory (2007-2012)**

Year	2007	2012
<b>Total Bridges</b>	<b>334</b>	<b>361</b>
<b>Structurally Deficient</b>	8	33
<i>% of Total</i>	2.4%	9.1%
<b>Functionally Obsolete</b>	15	15
<i>% of Total</i>	4.5%	4.2%

*Source: DelDOT*

**Exhibit 3.15: Delaware Bridge Inventory (2007-2012)**

Year	2007	2012
<b>Total Bridges</b>	<b>1,464</b>	<b>1,604</b>
<b>Structurally Deficient</b>	36	99
<i>% of Total</i>	2.5%	6.2%
<b>Functionally Obsolete</b>	171	172
<i>% of Total</i>	11.7%	10.7%

*Source: DelDOT*

### 3.12 Evacuation Routes

Kent County is vulnerable to a number of hazards including floods, hurricanes, hazardous materials incidents, terrorism, and nuclear facility incidents.

The Delaware State Transportation Management Teams (TMTs), in coordination with the Department of Homeland Security, work together to make joint decisions on how an incident or event that impacts the transportation system will be handled. TMTs were introduced in Delaware's Integrated Transportation Management Strategic Plan in December 1997. TMTs bring together personnel and resources from police, fire, rescue, emergency management, transportation, communications, environmental protection, public works, and other agencies to improve safety and reduce delays during incidents, events, and emergencies that impact Delaware's transportation system. There are six TMTs in Delaware, with one located in Kent County.

The All Hazards Evacuation Annex of the Transportation Incident and Event Management Plan for Kent County (April 2007) provides specific county-related details to accompany the Delaware Transportation Incident and Event Management Plan, prepared in August 2004. This Annex primarily focuses on managing the transportation system during large planned or unplanned incidents or events that might affect the health and safety of people who live or work in Kent County. The Kent County Evacuation Region Overall Map (November 2006) is included in the Annex Plan and is available on the DelDOT website. The map shows primary and secondary evacuation routes in addition to local evacuation routes.

Primary evacuation routes include Del. 1, and U.S. 13 and U.S. 113 for north/south movement as well as Woodland Beach Road, Port Mahon Road, Pickering Beach Road, Kitts Hummock Road, Bowers Beach Road, Milford Neck Road, Thompsonville Road, and Big Stone Beach Road.

These routes are limited and unlimited access highways, and local roads with numerous entrances and exits. A network of secondary evacuation routes direct local residents to the primary evacuation routes, and can be utilized to reroute traffic during an evacuation in the event that the primary evacuation routes become impassible (see **Exhibit 3.16**). Delaware Routes 8, 9, 12, 14, 15 and 300 are secondary evacuation routes. Local evacuation routes are any other routes in the County that feed into primary or secondary routes.

### 3.13 Operations

DelDOT's Division of Transportation Solutions (Traffic Section) manages most traffic control design and operation issues. This division is responsible for traffic-related analysis and design, including sign installation and maintenance and pavement markings.

Kent County has several major corridors with coordinated signal systems that are operated from DelDOT's Transportation Management Center in Smyrna. These corridors include:

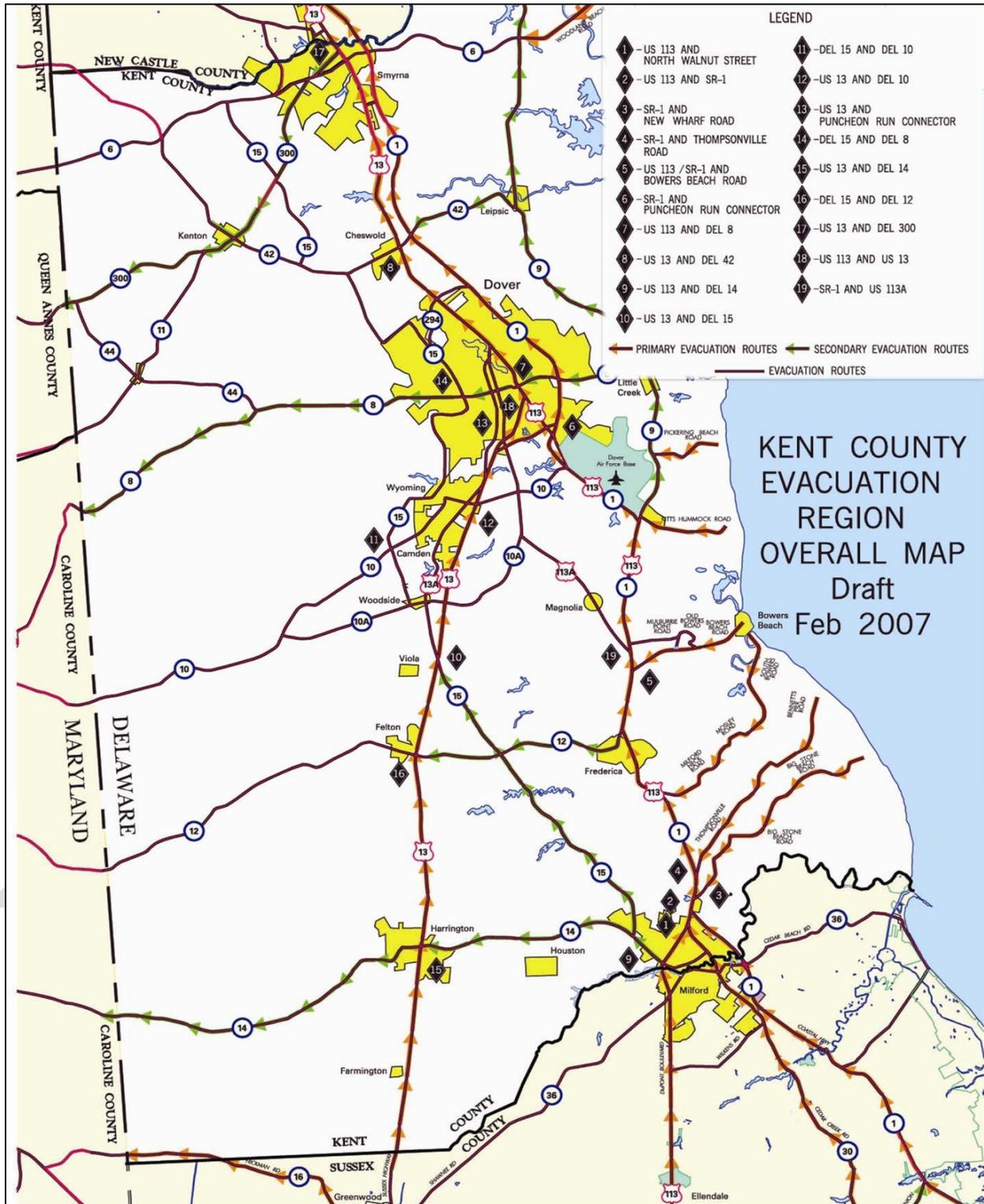
- U.S. 13 (through Smyrna)
- U.S. 13 (Camden to north Dover)
- U.S. 113 (Route 36 to north Milford)
- Route 8 (west Dover)
- Route 10 (U.S. 13 to Dover Air Force Base)

In addition, all traffic signals in Kent County are equipped with a preemptive system to allow paramedics, ambulance and fire trucks to trigger a green light at intersections so they can decrease their response time to emergencies.

### 3.14 Safety

An indicator of roadway safety is the number and type of motor vehicle crashes. In 2011, there were 20,872 vehicle crashes in Delaware. In that year, Kent County accounted for 3,036 of these accidents, 14.5 percent of the state total, which was the lowest of Delaware's three counties. Between 2007 and 2011, there was a decrease in the rate of vehicle crashes per million VMT in the county, as seen in **Exhibit 3.17**. In 2011, 17 fatal crashes occurred in Kent County. The number of crashes decreased and the crash rate fluctuated, but decreased overall, between 2007 and 2011.

Exhibit 3.16: Evacuation Routes Map



Source: DelDOT

**Exhibit 3.17: Kent County Motor Vehicle Crashes by Injury Severity (2007-2011)**

Year	2007	2009	2011
VTM (per million VMT)	1,700	1,633	1,612
Total Crashes	3,371	3,275	3,036
Rate (per million VMT)	1.98	2.01	1.88
Injury Crashes	888	852	916
Rate (per million VMT)	0.52	0.52	0.57
Fatal Crashes	19	17	17
Rate (per million VMT)	0.011	0.010	0.010

*Sources: Delaware Department of Transportation/Delaware State Police*

Persons involved in fatalities are also an important indicator of safety. **Exhibit 3.18** provides details on the percentage of fatalities by person involved, for both Kent County and statewide.

**Exhibit 3.18: Percent of Total Fatalities by Person Involved (2011)  
Driver or Passenger of a Motor Vehicle in Transport, Pedestrian or Bicyclist**

	Driver or Passenger of a Motor Vehicle In Transport	Motorcyclists	Pedestrian	Bicyclists
Kent County	58.9%	17.6%	23.5%	0.0%
Statewide	64.1%	17.5%	18.4%	0.0%

*Source: DelDOT/Delaware State Police Annual Traffic Statistical Report*

In 1998, the American Association of State Highway and Transportation Officials (AASHTO) noticed that efforts to reduce fatalities were stalling, and initiated the Strategic Highway Safety Plan (SHSP). AASHTO encouraged various state agencies in the nation involved in highway safety to coordinate and develop innovative strategies to reduce fatalities on America’s highways.

In September 2006, Delaware released its own SHSP. In 2010, Delaware rewrote this document, called the “Delaware Strategic Highway Safety Plan: Toward Zero Deaths.” The SHSP’s mission to eliminate fatalities on Delaware’s roads involves a multi-agency approach that utilizes education, enforcement, engineering and emergency services strategies. The Highway Safety Plan mentions a goal to cut Delaware’s road fatality rate to 1.0 per 100 million vehicle miles traveled by the year 2016. In Kent County, achieving that goal would cut the number of traffic fatalities in half. The 2010 SHSP for Delaware identifies seven primary emphasis areas and four secondary emphasis areas, as follows:

- Primary Emphasis Area #1: Reducing the Frequency and Severity of Roadway Departure Crashes
- Primary Emphasis Area #2: Curbing Aggressive Driving
- Primary Emphasis Area #3: Increasing Seatbelt Usage
- Primary Emphasis Area #4: Reducing Impaired Driving
- Primary Emphasis Area #5: Improving the Design and Operation of Highway Intersections
- Primary Emphasis Area #6: Making Walking and Street Crossing Safer
- Primary Emphasis Area #7: Improving Motorcycle Safety and Increasing Motorcycle Awareness
  
- Secondary Emphasis Area #1: Sustaining Proficiency in Older Drivers
- Secondary Emphasis Area #2: Making Heavy Vehicle Travel Safer
- Secondary Emphasis Area #3: Designing Safer Work Zones
- Secondary Emphasis Area #4: Improving Traffic Records

The Hazard Elimination Program (HEP) aims to reduce crashes by improving road design. Each year, DelDOT identifies sites in the Dover/Kent MPO region that meet the HEP criteria for inclusion in the program. The sites are reviewed to determine the principal type of crashes, their conditions, and severity. From this information, DelDOT assesses whether the location could be made safer through a focus on low-cost, high-benefit improvements such as roadway pavement marking or signing, or if a more detailed engineering study is needed. DelDOT evaluates all locations identified in the HEP under these criteria.

Between 2007 and 2011, the HEP identified sites in the MPO region. **Exhibit 3.19** shows the number of HEP sites added per year. Of the total sites in the County, eight are located on U.S. 13, three are located on Route 1, and one is located on U.S. 113.

**Exhibit 3.19: Number of HEP Sites by Year (2007-2011)**

Year	# of HEP Sites
2007	7
2008	8
2009	9
2010	4
2011	4

*Source: DelDOT*

As the region continues to develop in an auto-dependent pattern and VMT subsequently increases (as shown in Chapter 4), the number of crashes may also increase. DelDOT maintains a crash database to analyze the high-crash locations and identify the possible need for roadway improvements. Continued similar site-specific analysis and remedy will be necessary as increasing travel demand creates growing congestion conditions, which contribute to driver failure and increased crashes.

### 3.15 Public Transportation

Public transportation includes a broad range of services in Kent County, including local fixed route transit, intercounty commuter transit, paratransit, and subsidized taxi. Public transit service is provided in Kent County by Delaware Transit Corporation (DTC), operating as DART First State. The success of public transportation is dependent upon adequate density to support it and must be considered with future development patterns.

Approximately 46,000 residents in Kent County are within one-quarter mile of transit services, the typical distance considered reasonable for someone to access fixed-route services. **Exhibit 3.20** highlights these areas within one-quarter mile of transit.

#### 3.15A DART First State South District

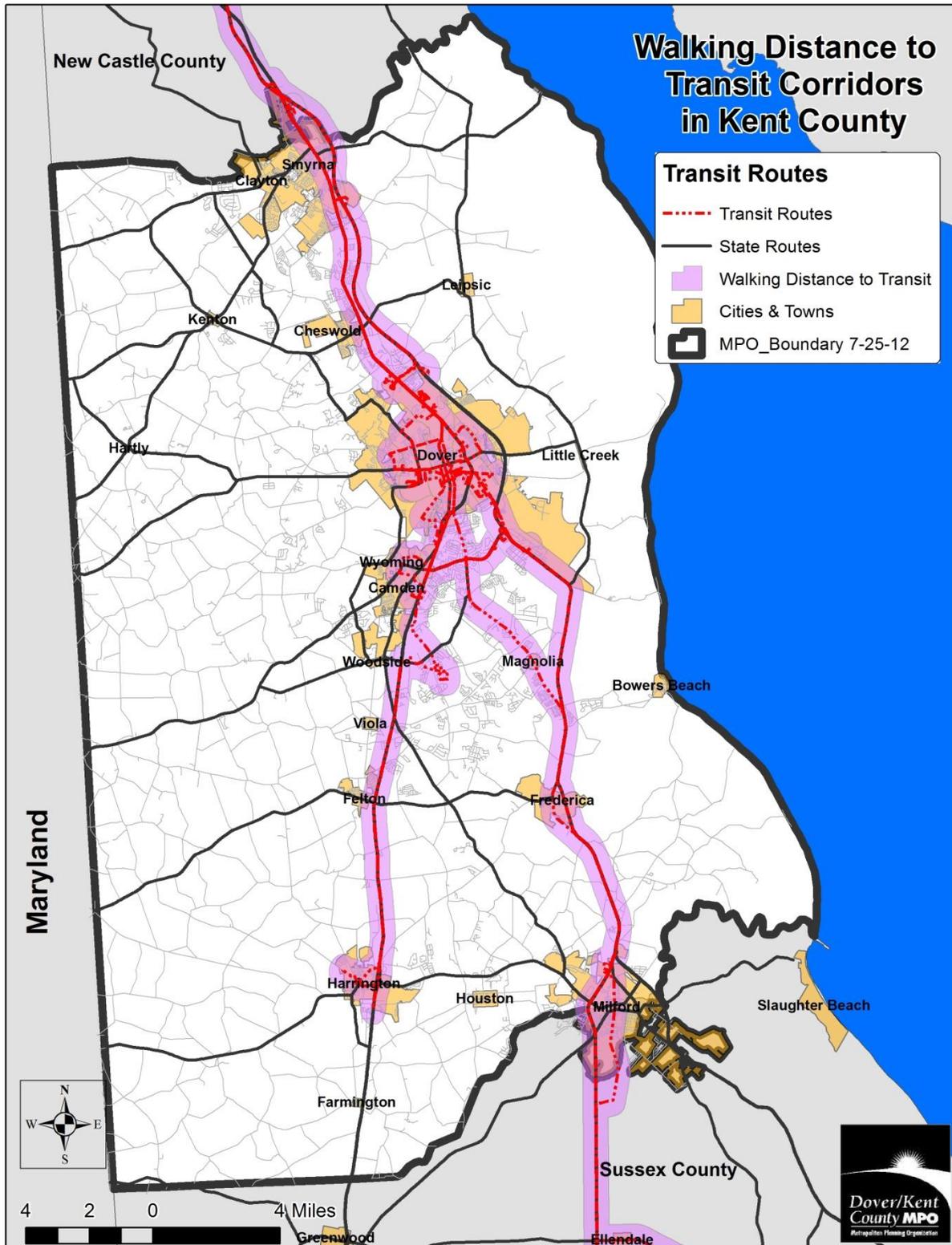
DART First State's South District provides service in Kent County focused around a radial/loop pattern from the Water Street Transfer Center in downtown Dover. The system provides basic mobility for city residents to access medical services, employment, recreation, social services and institutions of higher learning. Some of the major generators are Kent General Hospital, Dover Mall, Delaware State University, Dover Downs, the state capital, Dover Air Force Base, Dover's downtown area and Wal-Mart. DART service provides enough spatial coverage to bring almost all parts of the city within walking distance of a transit stop.

Thirteen fixed routes serve the Dover area, operating between 6:00 a.m. and 6:00 p.m. on weekdays and five fixed routes on Saturday operating from 9:00 a.m. to 6:00 p.m.

In addition, an extended local service, Route 120, operating between 5:00 a.m. and 7:00 p.m. on weekdays between Dover and Smyrna began in December of 2009 to offset overcrowding on the Intercounty Route 301. The Dover routes meet the Intercounty Route 301 service that operates between Dover and Wilmington, and the Route 303 Intercity service that operates between Dover and Georgetown via Milford. The former Harrington/Dover Shuttle, which connects with bus Route 104 at the Camden Wal-Mart, was so successful it is now one of DART's regular fixed routes, Route 117. With the exception of the Route 117 and Route 120, all of the Dover-area bus routes operate on the hour or half hour in a timed-transfer system, pulsing from the Water Street Transfer Center.

Transit service in Kent County ceases after 6:00 p.m. due to a smaller population and less demand. However, the growing demand to provide access to employment beyond 6:00 p.m. prompted DTC to launch GoLink Night Service in 2003. It is a way to more effectively utilize the countywide paratransit bus equipment, which was already operating until 9:00 p.m. GoLink Night Service operates between 6 p.m. and 9 p.m. using existing Paratransit trips, by advanced reservations between fixed route bus stops. Like the day services, passengers are picked up and dropped off at fixed route bus stops. The only difference is the advanced reservation.

Exhibit 3.20: Areas Within One Quarter Mile of Existing Transit Service



Source: Delaware Transit Corporation

GoLink Flex Service is also provided within the Dover area, where customers within an established flex zone can catch a paratransit bus from a flex stop to the closest fixed route bus stop. Customers using this service make an advanced reservation. This service provides more accessible service to communities and customers who do not have direct access to fixed-route service. Flex service essentially expands transit service into low-density areas, using existing resources. In (FY) 2011 there were 1,329 total passenger trips, 61 GoLink Flex service trips and 1,268 GoLink Night Service trips.

A fleet of 18 medium-sized fixed route buses are housed and maintained at the DelDOT complex in Dover. In 2011, this transit fleet logged 715,451 vehicle miles and 47,604 vehicle hours representing an increase of 52 percent from 2006 in miles and 33 percent in hours. **Exhibit 3.21** provides operating statistics for DART First State South Fixed Route Transit in Kent County. Ridership increased from 364,781 passenger trips in 2006 to 622,694 passenger trips in 2011, approximately 71 percent. Primary trip destinations continue to include school, work, medical services, and shopping, with the most utilized bus stops located at attractors such as Dover Downs, shopping centers, and social service agencies.

**Exhibit 3.21: Kent County Fixed-Route Operating Statistics (2006-2011)**

Measure	2006	2007	2008	2009	2010	2011
Miles	471,537	462,295	461,124	482,816	612,811	715,451
Hours	35,924	35,725	35,558	37,585	42,518	47,604
Passenger trips	364,781	376,223	409,942	468,517	525,829	622,694
Trips/mile	0.77	0.81	0.89	0.97	0.86	0.87
Trips/hour	10.15	10.53	11.53	12.47	12.37	13.08

*Source: Delaware Transit Corporation*

DTC’s Dover Transit Center facility opened in December 2009. The new hub has fifteen bus bays, approximately 90 parking spaces, passenger benches, trash receptacles and information kiosk. Future expansions for the transit facility include an indoor waiting room, ticket sales, real time passenger information, and other amenities. In addition to supporting DART’s local, paratransit, intercounty and intercity services, the transit center will support privately-run intercity bus services. The site is adjacent to the Norfolk Southern railroad and has been identified as the future Dover Station for downstate commuter rail.

Moving forward, DTC is partnering with the Dover Kent Metropolitan Organization and Rideshare Delaware to conduct an interest survey with the major employers in Kent County, “What About DART?” The purpose of the survey is to learn if employees are familiar with or use DART’s bus service or carpool. It will also take a look at how far and when employees travel to and from work. Lastly, we hope to obtain information from employees about what transit factors impact the decision to ride or not ride public transit. It is anticipated that a comprehensive review of this market will help formulate service change proposals that provides our customers with the most efficient service delivery options.

DTC continues to make progress toward making all bus stops compliant with Americans with Disabilities Act (ADA) regulations. Facilities are provided at stops generally based on ridership at that particular location. The most heavily-used bus stops are afforded a bench and shelter or other protection from the elements. As more funding becomes available, provision for ADA accessibility and stop amenities will progress in priority order based on need and ridership levels.

The FY2013 Service Plan will continue to study Delaware's Interstate travel demand and the most efficient means for DTC to serve this growing market. The population growth in southern New Castle County, northern Kent County and Sussex County has contributed to the increase in demand for transit service between counties. DTC has a need to provide more service to this growing population segment, and to help alleviate roadway congestion on Route 1 and U.S. 13/896/301 corridors.

DTC proposes to continue monitoring the performance of the Route 301 Saturday service via December 2011 Service Change with two roundtrips and the reverse commuting nature of the New Castle to Kent County trips that are funded through the Jobs Access Reverse Commute grant.

### **Paratransit Services**

The ADA of 1990 requires transit agencies to provide paratransit services for eligible riders within 3/4-mile of the alignment of fixed-route services. DART First State provides statewide door-to-door bus service for individuals who are unable to use fixed-route bus service due to age or disability.

### **Senior Citizens Affordable Taxi (SCAT)**

The SCAT program provides a 50 percent discount on taxi fares for senior citizens, and persons with disabilities which prevent them from operating a motor vehicle. There are five privately-owned cab companies throughout the state that provide the taxi service, and are reimbursed by the state. In Kent County, City Cab of Dover and Watkins Cab of Milford provide these services.

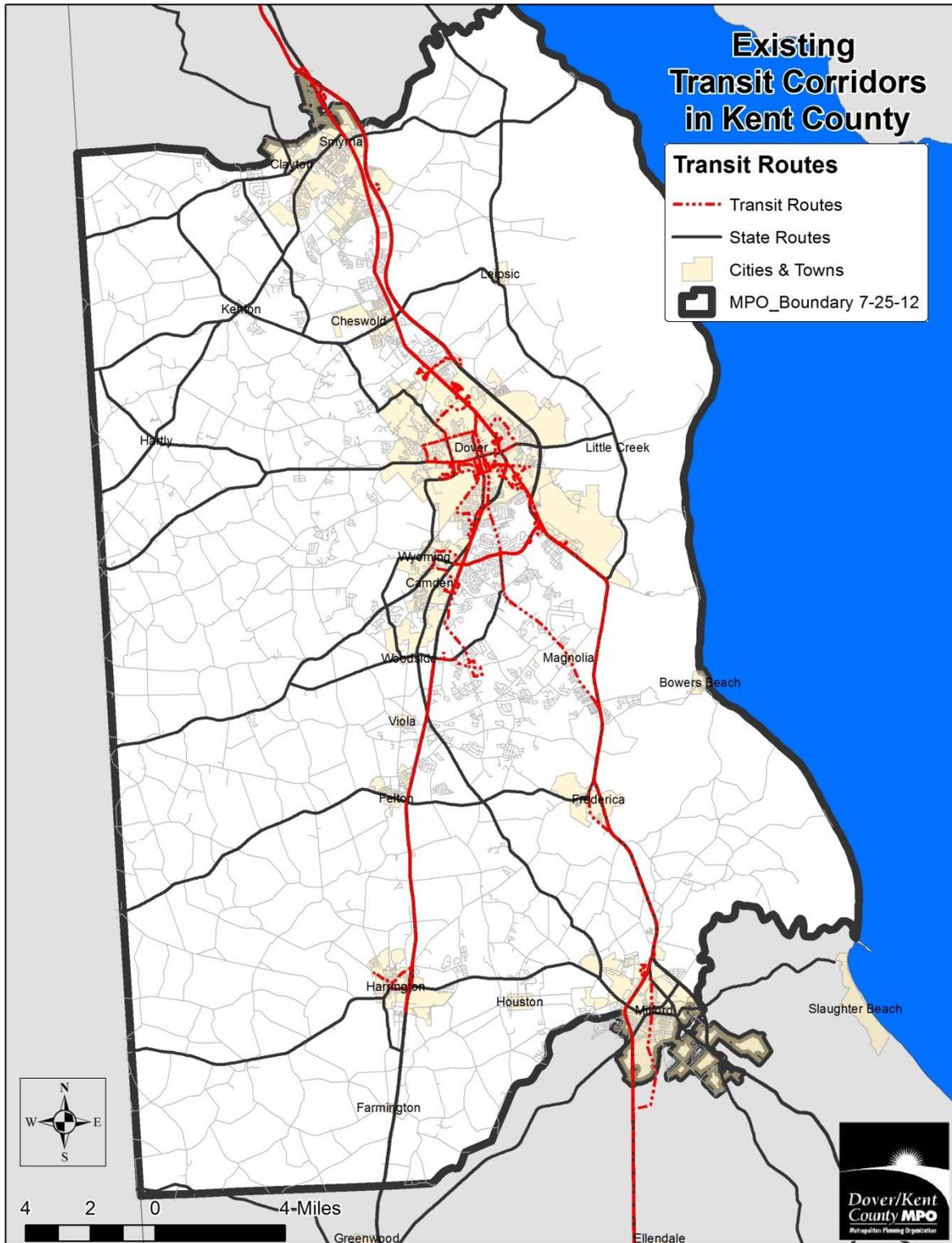
### **Federal Section 5310 Pledge Program**

This Federal Transit Administration (FTA) program provides capital funding to private and public nonprofit agencies for the purchase of vehicles to provide transportation to the elderly and disabled. Funds are allotted to the state and Delaware Transit Corporation administers the program. The vehicles are used by non-profit organizations such as senior centers, community centers, churches, nursing homes, social service agencies and community-based organizations to provide transportation to their clients for shopping, medical appointments, and recreation. Volunteer drivers, as well as agency-paid drivers, help operate the service. In 2011, the FTA Section 5310 program provided 268,657 trips.

### **Kent-Sussex Agency Reimbursable Transportation Program**

Through the Kent-Sussex Reimbursable Program, the state provides operating funds for elderly and disabled residents' transportation in Kent and Sussex counties. The local governments approve which agencies participate in the program along with determining funding for each agency. Transportation is provided by the participating agency and Delaware Transit Corporation administers the program.

Exhibit 3.22: DART First State Transit Routes



Source: Delaware Transit Corporation

Exhibit 3.23: DART's Dover Transit Routes



Source: Delaware Transit Corporation

**Exhibit 3.24: Kent County Paratransit Operating Statistics (2007-2011)**

Measure	2007		2009		2011	
	Kent	Statewide	Kent	Statewide	Kent	Statewide
Fleet	48	225	58	268	63	290
Miles (In Millions)	1.6	8.6	1.98	9.86	1.83	10.15
Hours	93,877	469,476	108,470	535,968	94,932	531,320
Passenger Trips	176,716	811,907	193,916	900,128	199,634	968,323
Trips/Mile	0.11	0.09	0.10	0.09	0.11	0.10
Trips/Hour	1.88	1.73	1.79	1.68	2.10	1.82

*Source: Delaware Transit Corporation*

**Intercity and Intercounty Bus Service**

The DART First State intercity and intercounty transit operation provides service with stops in Smyrna, Dover, Magnolia, Milford, and Georgetown. Kent County bus service includes connections with Intercounty Route 301 and Intercity Route 303. Route 301 operates between Dover and Wilmington. Route 303 operates between Dover and Georgetown.

**Exhibit 3.25: Kent County Intercity Operating Statistics (2007-2011)**

Measure	2007	2009	2011
Miles	206,768	207,582	236,266
Hours	7,923	7,954	8,710
Passenger Trips	27,848	38,064	59,994
Trips/Mile	0.13	0.18	0.25
Trips/Hour	3.51	4.79	6.89

*Source: Delaware Transit Corporation*

According to the *Kent County Coordinated Transit/Transportation Plan*, DTC operates a highly successful intercounty route from Wilmington to Dover via Route 1. The overall goal of the route is to reduce the one-way travel time to make it comparable to the single-occupant vehicle. Route 301 operates sixteen round trips, during weekdays between 4:38 a.m. and 8:45 p.m. In December 2011, a pilot service of two round trips was added on Saturdays.

DART Route 305, the Beach Connection, links New Castle and Kent counties with the Rehoboth park-and-ride and Resort Transit. Route 305 operates during the summer approximately from Memorial Day to Labor Day on weekends to mitigate traffic on DE1. On Friday there is one round trip leaving Wilmington at 6:48 pm, three round trips on Saturday from 8:30 am to 5:30 pm, and two round trips on Sunday at 8:15 am and 5:30 pm. The Friday evening trip returns from Rehoboth at 9:00 pm and the last trips returning from Rehoboth on Saturday and Sunday is at 8:00pm. Kent County residents can access the Route 305 at the Smyrna Rest Area and Scarborough Road Park and Ride.

### Other Value-Added Services

As identified in *Transitioning to Transit, Delaware's Long-Range Transit Plan for the 21<sup>st</sup> Century: Long-Range Plan 2000-2025*, these additional services are provided by DTC:

- *Travel Training* – Teaches people how to use transit services.
- *Business Partners in Transit* – Educates employers about transit programs and tax credits.
- *Community Partners in Transit* – Works with education, community, and youth groups to encourage transit use and ride-matching service.
- *Mobility Brokerage* – Finds alternative transportation solutions when regular fixed-route services cannot meet customers' needs.
- *TransitChek* – Provides a commuter benefit that is tax free to employees and tax deductible to employers.
- *Job Works!* – Provides clients of job placement agencies with free bus transportation to job interviews.
- *Rideshare Delaware* – Provides a ride matching service for carpooling.

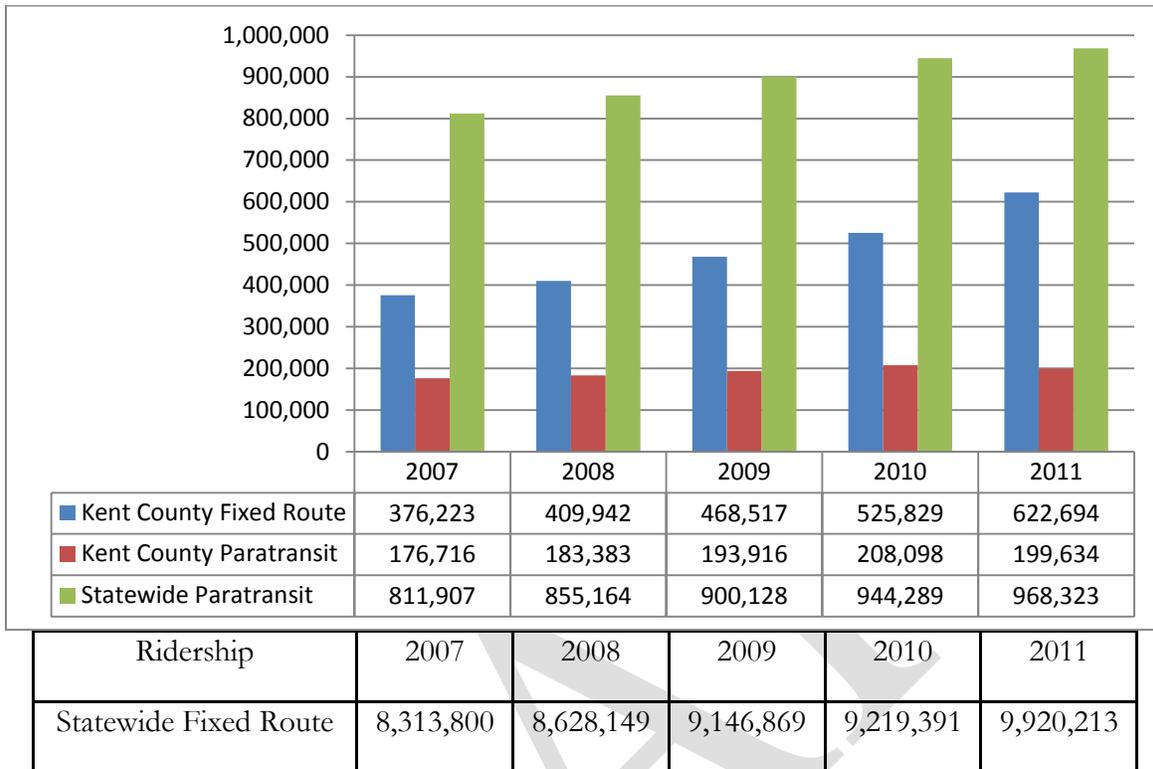
### Public Transportation Ridership

Kent County has experienced an increase in its transit ridership in recent years. Fixed Route passenger trips have increased from 376,223 in 2006 to 622,694 trips in 2011, representing a 66 percent increase in ridership. At the same time, statewide paratransit ridership increased from 811,907 in 2007 to 968,323 riders in 2011, representing an increase of 19 percent. Kent County also experienced an increase in paratransit ridership. In 2007, there were 176,716 paratransit trips while that number grew to 199,634 in 2011, representing a 13 percent increase.

### Ridesharing

Programs of DART First State include Park-and-Ride/Pool locations, carpooling and vanpooling, school pool, the Guaranteed Ride Home program and transit programs.

**Exhibit 3.26: Kent County Paratransit and Fixed Route Ridership (2007-2011)**



**RideShare Delaware**

Ridesharing refers to modes of travel that are alternatives to single-occupant vehicle travel, including carpooling, vanpooling, and taking the bus or train. In 2006, approximately 9.4 percent of Delaware commuters shared a ride to work. Each benefited by saving money in fuel and vehicle maintenance costs, and reducing air pollution and traffic congestion. This compares to the national average of 10 percent of commuters.

RideShare Delaware is dedicated to aiding commuters with finding and using alternative modes of transportation. RideShare is a free public service of DART First State. Funded with a combination of federal Congestion, Mitigation & Air Quality (CMAQ) and state dollars, the program’s goal is to reduce the number of single-occupant vehicles (SOVs) traveling on Delaware’s roadways, thus improving air quality in the First State. RideShare works in partnership with local and regional agencies toward meeting federal air quality standards.

RideShare offers free ridematching services for commuters working in the state and for parents of students in Delaware schools. It includes an emergency-ride-home benefit for registered commuters actively ridesharing to work, vanpool services, and transportation benefit assistance to employers as well as commuters that live or work in Delaware. A little more than 900 Kent County residents are involved in RideShare Delaware, about 16 percent of the total program participants statewide. This includes over 710 employees working at about 160 Kent County worksites. The state of Delaware is the largest employer offering ridesharing benefits in Kent County.

**Park-and-Ride/Pool Lots**

An effective Ridesharing program offers alternative methods to accommodate commuters sharing transportation.

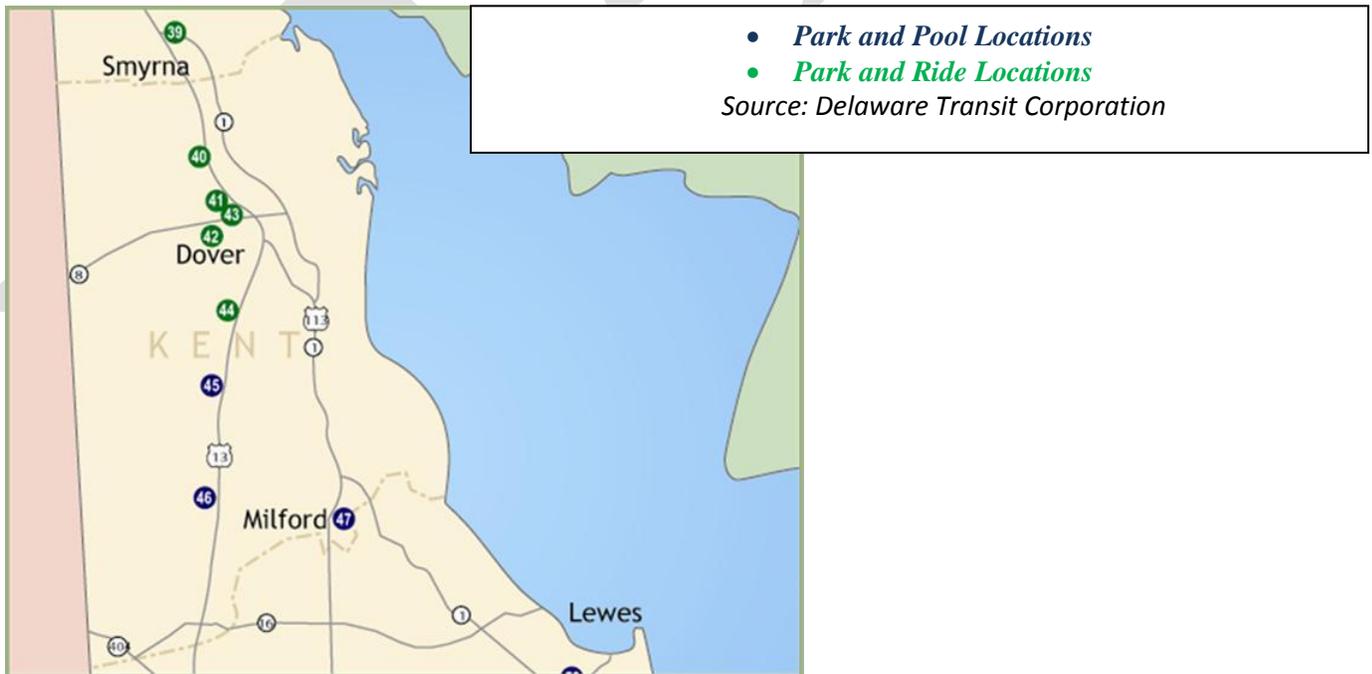
Park and Ride Locations include:

- Smyrna Rest Area #39  
Routes: 120, 301
- Scarborough Road, Dover #40  
Routes: 112, 120, 301, 305
- Delaware Agricultural Museum #41 866 North DuPont Hwy., Dover;  
Routes: 109, 112, 120
- Dover Transit Center #42  
Routes: 100-109, 112, 113,120, 301, 303
- St. Andrew’s Lutheran Church #43; 425 North DuPont Hwy., Dover;  
Routes: 108. Board on Townsend Blvd. at K-Mart; 109; Board on US 13 in front of K-Mart
- Faith Community Church #44, 2240 South DuPont Hwy., Dover  
Routes: 104, 303

Park and Pool locations are:

- Shore Stop; #45; US 13 & Road 31, Canterbury
- Harrington Moose Lodge; #46; US 13, Harrington
- Milford Bowling Lanes; #47; 809 North DuPont Hwy., Milford

**Exhibit 3.27: Kent County Park-and-Ride and Park-and-Pool Facilities**



### 3.16 Bicycle and Pedestrian Facilities

Delaware law allows bicycling and pedestrian access on all roadways, except for limited access expressways (functional classifications of Interstate and Route 1 north of the toll plaza in Dover) or in exceptional circumstances where specifically prohibited. Some roadways have specific design components intended to provide for bicycle travel, such as bike lanes or wide shoulders, whereas on other roadways, bicyclists must ride in the travel lane. Similarly, sidewalks are common pedestrian facilities within urbanized areas, but less common in outlying rural areas. Pedestrians must walk on sidewalks, or if not available, facing traffic as far off to the side of the roadway as possible. Pedestrians also should cross roadways at designated crossings or intersections where provided. As stated in the City of Dover *Comprehensive Plan Update* (amended 2005), and reiterated in the 2008 *Kent County Comprehensive Plan*, bikeways and pedestrian ways along collector and arterial streets are fragmented. “Share the Road” signs have been posted recently to increase motorists’ awareness of the presence of bicyclists and pedestrians. As part of any new development or redevelopment applications, DelDOT typically requires bike lanes, sidewalks, and/or shared-use paths as part of site plan approval.

#### Overview of Types of Facilities

AASHTO has developed a classification system for bicycle facilities. This system designates four classes of bicycle facilities:

- Shared Roadways (no Bikeway Designation)
- Signed Shared Roadways
- Bike Lanes
- Shared Use Paths

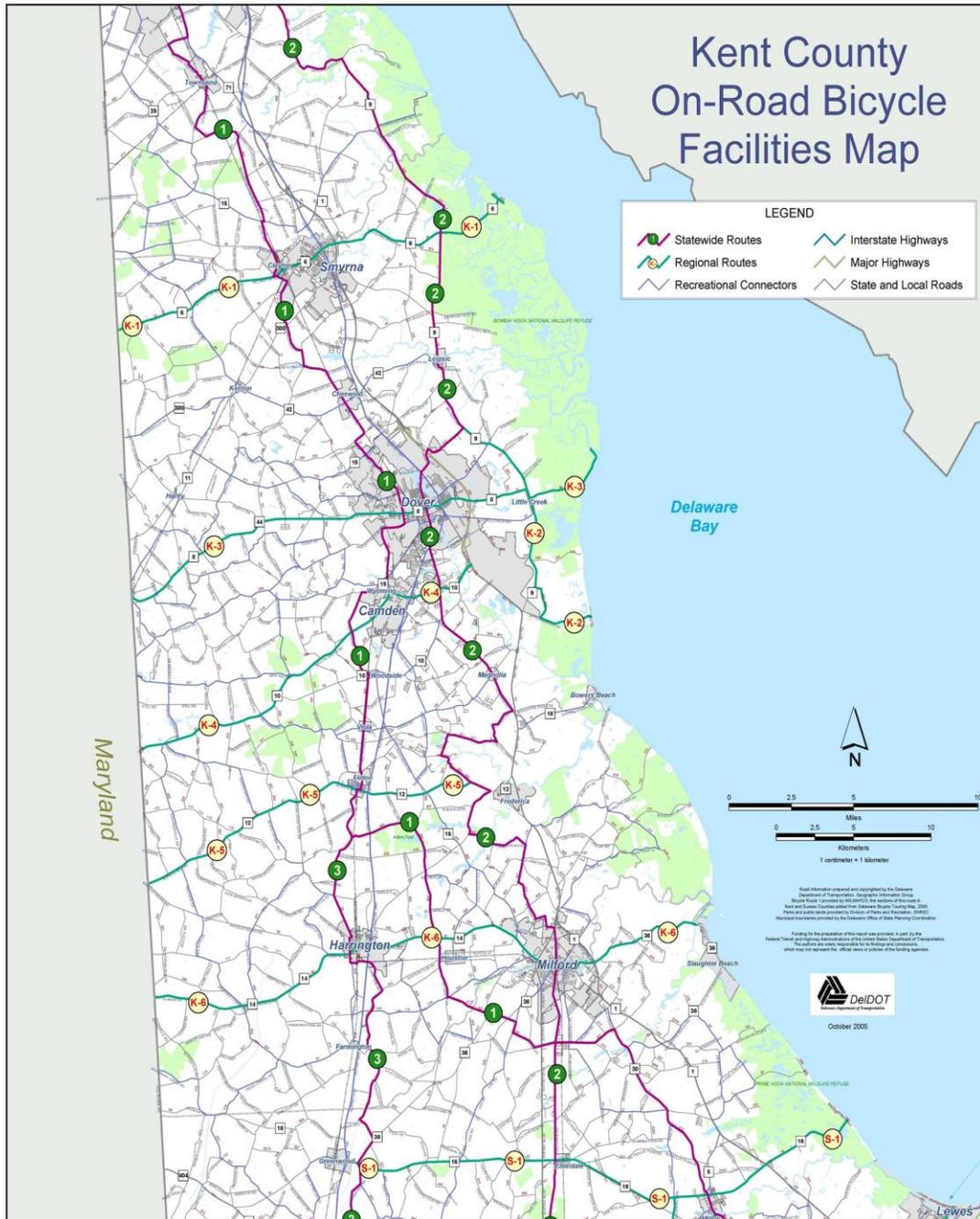
Shared Roadways refers to roadways that are not specifically designated as bicycle routes. Bicycle travel is legal and allowed on these roadways (except where specifically prohibited, such as on limited-access expressways as described above), but they lack signs, striping, or other designations that identify them for use by bicycles. Most roads in Kent County fall under the Shared Roadways category. Signed Shared Roadways have been specifically identified as preferred routes for bicyclists, with “Bike Route” signs. These roadways do not provide specific travel lanes for bicycles, but may include paved shoulders, wide curb lanes, or other features that make the route better-suited to bicycle travel. Bike Lanes are on-street travel lanes reserved for use exclusively by bicycles. They are designated by lane markings and signs, and are typically provided on corridors where higher levels of bicycle use are anticipated, and where separation of motorists and bicycles is beneficial. Shared Use Paths are off-street trails that serve both bicycles and pedestrians. These paths often serve both recreational and transportation purposes. Such paths are primarily provided in state and local parks in the County, but are also provided as part of new land developments. Sidewalks are generally intended for use by pedestrians only, though bicycles are also allowed to use sidewalks in most areas, provided that they travel at a safe (slow) rate of speed and grant right-of-way to pedestrians. Sidewalks are more commonly provided in towns and urbanized areas, and rarely along more rural roadways. Pedestrians may use roadway shoulders when sidewalks are not present.

#### Existing Bikeways

DelDOT has identified a number of statewide and regional bikeways in Kent County. The *Delaware Bicycle Facilities Master Plan* (2005) identified Statewide Bicycle Routes, Regional Bicycle Routes, and Recreational Connectors in Kent County.

These bikeways (see **Exhibit 3.28**) are predominantly located on paved shoulder roadways, though many do not have “Bike Route” signs and therefore are not Signed Shared Roadways. Some of these corridors do have “Share the Road” signs intended to increase motorist awareness of bicyclists along the route. While there are no major physical barriers to bicycling in Kent County, traffic conditions in heavily traveled areas such as U.S. 13 and U.S. 113 may create local safety concerns to less experienced bicyclists.

**Exhibit 3.28: Designated Statewide and Regional Bicycle Routes in Kent County**



Source: DelDOT Planning

### Existing Pedestrian Facilities

Sidewalks are the primary type of pedestrian facility in the region, although pedestrians may use bike paths, bike trails, greenways, and paved shoulders (walking facing traffic) when no sidewalk is present. According to 2012 data provided by DelDOT Planning, there are 464 miles of footpaths, sidewalks, and crosswalks in the MPO area.

Bicyclists are legally permitted on sidewalks unless specifically prohibited such as in certain downtowns or other locations where potential conflicts with pedestrians are high. However, sidewalks are not intended to accommodate most bicyclists, who can reach speeds of 15-20 mph. Pedestrians travel at about three miles per hour. As previously stated, sidewalks are less common in outlying unincorporated areas. DelDOT maintains an inventory of roadways with sidewalks in municipalities and in suburban developments. Based on the latest information, Kent County accounts for about 10 percent of the statewide total for miles of roadways with sidewalks on both sides, and about 14 percent of the total for miles of roadways on one side only.

### Bicycle and Pedestrian Planning

DelDOT is actively updating the state's long-range bicycle plan that will address the bicycle facilities at both the route and policy levels. The Pedestrian Action Plan and Bicycle Facilities Plan will guide efforts to improve bicycle and pedestrian opportunities in Delaware and its counties. In addition, most of the local governments in the County require new sidewalk and bicycle facilities for applicable development projects.

In September 2011, the MPO adopted its Regional Bicycle Plan for Kent County. The plan identified a variety of recommended on-road and off-road bicycle improvements throughout the County. Included in the Plan were 18 proposed on-road improvement locations, where specific recommendations such as shoulders, signing, striping, and paving modifications were identified. The Plan also identified seven new off-road trail connections throughout the County.

In October 2011, the First State Trails and Pathways Initiative was adopted by DelDOT and the Department of Natural Resources and Environmental Control. This initiative is a dedicated effort between a variety of agencies to promote non-motorized transportation throughout the State, to provide a world-class system of trails connecting towns, neighborhoods, parks, and natural areas, and to provide enhanced economic opportunities as they relate to bicycling, tourism, and recreation. DelDOT recently initiated final design for two trail projects that were initially identified in the Regional Bicycle Plan – the Capital City trail in downtown Dover and the Route 10 Bicycle/Pedestrian trail (from the Isaac Branch trail to the Gateway South shopping center).

### DelDOT Pedestrian Action Plan

DelDOT developed its statewide pedestrian action plan in 2008. This plan will address and propose solutions to identified key issues in an effort to make walking a safe, convenient, efficient and comfortable means of transportation. As of the fall of 2012, DelDOT has conducted an assessment of the existing pedestrian network and has prepared a draft American with Disabilities Act (ADA) Implementation Plan. The draft report indicates the need for numerous pedestrian improvements in Kent County. The intent of the ADA Implementation Plan is to develop pedestrian improvements in accordance with Governor Markell's Executive Order 26, which notes that State investment should initially be concentrated in Level 1 areas, as identified by the *State Strategies for Policies and Spending*.

**DelDOT Bicycle Facilities Plan**

The Delaware Bicycle Facility Master Plan (2005) was developed in order to define and implement a statewide system of designated, on-road bicycle routes. The Bicycle Facility Master Plan will be considered in conjunction with several other policies and programs including the DelDOT Rails-to-Trails Program, and local and regional bicycle master plans.

The overall purpose of the plan is to recognize bicycling as an integral part of the transportation system and provide for suitable accommodations for bicycles on the statewide roadway network. Implementation of the plan will achieve the following goals:

- Integrate existing bicycle routes and trails to a larger, statewide bicycle network.
- Establish bicycle routes between municipalities, activity centers, and recreational areas throughout the state.
- Tie bicycles to other modes, creating availability for mode share and reducing the need for single-occupant vehicles, particularly for work trips.

In July 2011, DelDOT published the updated Bicycle Map for Kent County. The Bicycle Map designates roads within the following categories for bicycle mobility:

- Statewide Bicycle Routes – North-south connections between New Castle, Kent, and Sussex Counties
- Regional Bicycle Routes – Higher traffic routes that provide direct connections between major municipalities and activity centers
- Connector Bicycle Routes – Routes that provide connections from local activity and recreational centers to the larger bicycle network

**Exhibit 3.29** lists the following miles of each particular route within the MPO region.

**Exhibit 3.29: Bicycle Route Designations**

<b>Bicycle Route Designation</b>	<b>Miles</b>
Statewide	369
Regional	223
Connector	318

*Source: DelDOT Planning*

**Complete Streets**

In January 2010, DelDOT issued its Complete Streets Policy. Complete streets are designed and operated to enable safe and efficient access for all users, and allows all users to choose among different transportation modes (including non-motorized modes). DelDOT, Kent County and Dover have adopted measures to improve bicycle and pedestrian facilities as a standard course of business. Most new roadway projects consider the need of, and include improvements for, multi-modal facilities. In addition, through the land development process, requirements have been requested of developers to include sidewalks and/or shared use paths in conjunction with their projects. Also, various types of traffic calming devices may facilitate pedestrian travel by slowing motor vehicle travel, increasing visibility, and providing pedestrian crossing refuge islands. Several suburban developments in Kent County have utilized traffic calming features, including roundabouts and speed humps, on their streets. Downtown Dover uses sidewalk bulb-outs, textured pavements, on-street parking, and a traffic-diverter to calm traffic and create a more pedestrian-friendly environment. Roadway projects with planned bicycle facilities will be based on the new bicycle facility design guidelines established in both the Facility Plan and the Road Design Manual.

**Bicycle and Pedestrian Safety**

Bicyclists and pedestrians are at risk of injury from motor vehicles and other hazards along roadways and pathways. Over the past 15 years, generally more crashes have involved pedestrians than bicycles, as seen in **Exhibit 3.30**. Overall, pedestrian crashes have increased over the past decade, peaking in 2010. Bicycle crashes have remained generally consistent during the same time period. The number of bicycle crashes that occurred in 2011 represented the lowest number of crashes during the past decade.

In 2011, bicycle and pedestrian crashes accounted for 2.0 percent of all traffic crashes. Since 2000, bicycle and pedestrian crashes have made up between 1.5 and 2.2 percent of all traffic crashes in Kent County. It is important to note that impaired pedestrians were involved in 30 to 40 percent of these crashes.

**Exhibit 3.30: Kent County Bicycle and Pedestrian Crash Data**

Year	Pedestrian Crashes		Bicycle Crashes	
	Total	Fatal	Total	Fatal
2006	40	6	19	1
2007	29	4	16	0
2008	36	2	21	2
2009	29	2	18	2
2010	55	5	29	0
2011	51	4	11	0

*Source : Delaware State Police Traffic Statistical Report*

### 3.17 Goods Movement

The dominant means of goods movement in Kent County, as well as in Delaware overall, is by truck. Trucks move approximately 80 percent of manufactured goods to and from Delaware each year. The main commodities shipped from Kent County in 2010 were chemicals, minerals, food, lumber, and farming materials. Most of the commodity flows from Kent County are transported within the State of Delaware. As stated in the Dover/Kent County MPO Transportation Information Booklet, "...in 2007 Kent County imported 4,305,215 tons of consumer goods, raw materials, and other precious commodities, with a total of 223,302 trucks hauling these goods into the county." Kent County receives more than one-third of its goods from New Castle County, Pennsylvania, and New Jersey. Based on the latest DelDOT statistics, about one in 15 vehicles (6 percent) on Kent County roads carries freight. By comparison, in 2001, the same 6 percent of the total annual average daily traffic (AADT) was heavy trucks. In Kent County, U.S. 13, U.S. 113 and Route 1 are the primary truck routes. U.S. 13 is the principal freight transportation route for private and for-hire motor carriers in Delaware. In Dover, McKee-Saulsbury Road is a designated truck route to serve the industrial areas on the west side of the city. High truck traffic volumes have also been recorded on U.S. 13 through Farmington, Felton, Woodside, Camden, Cheswold, and Smyrna. The increase of truck traffic and truck dependence has resulted in issues of road capacity and safety. The growing number of trucks and truck miles has led to accelerated damage of the highway system, decreasing air quality, more noise, and an overall negative impact on our resident's quality of life. In several areas throughout the state, shippers, carriers, and the community have made special efforts to direct trucks to designated routes.

### 3.18 Passenger and Freight Railroads

The state of Delaware has five freight railroads and 218 freight rail-miles. One railroad, the Class I, or national carrier, Norfolk Southern (NS), serves tracks in Kent County. Norfolk Southern runs north and south through Kent County from Clayton through Harrington. To the north, NS connects to the national railroad system via the Amtrak Northeast Corridor.

Several major commodities come into Delaware by rail, according to waybill samples provided by the railroads. These commodities are automobiles, coal, stone/aggregates, chemicals, and grain. Coal and grain are the two major commodities delivered to, or through, Kent County. Grain imports are necessary to support the massive poultry industry, which has outstripped the ability of the local growers to supply the entire amount. Coal is crucial for electric power production. Food products are another rail-imported commodity.

Rail freight represents an under-utilized resource in Delaware, with the volume of service consistently below the capacity of the rail lines and below the potential to warrant improvements in most locations. There are some important areas where chokepoints exist, and addressing these will increase velocity on the entire downstate network.

DelDOT continues to promote freight rail as an alternative to truck traffic on Delaware's highways. DelDOT works with freight railroad companies throughout the state to improve infrastructure and service, as well as address citizen concerns about safety, noise, traffic, and other rail-related issues. DelDOT has partnered with NS on major infrastructure projects, and continues to seek opportunities for public-private partnerships.

In September 2011, DelDOT prepared its *State Rail Plan*. As described in the *State Rail Plan*, the purpose of the Plan is to:

- Broaden the understanding of rail issues for all stakeholders
- Define the role of railroads in a multimodal environment
- Identify infrastructure and other improvements required to improve rail service
- Provide a framework to implement rail improvement initiatives
- Support DelDOT in obtaining federal funding

The document analyzes freight mobility, feasible passenger rail service, transportation efficiency, congestion mitigation, and livable communities throughout the state.

### **Freight Rail Lines**

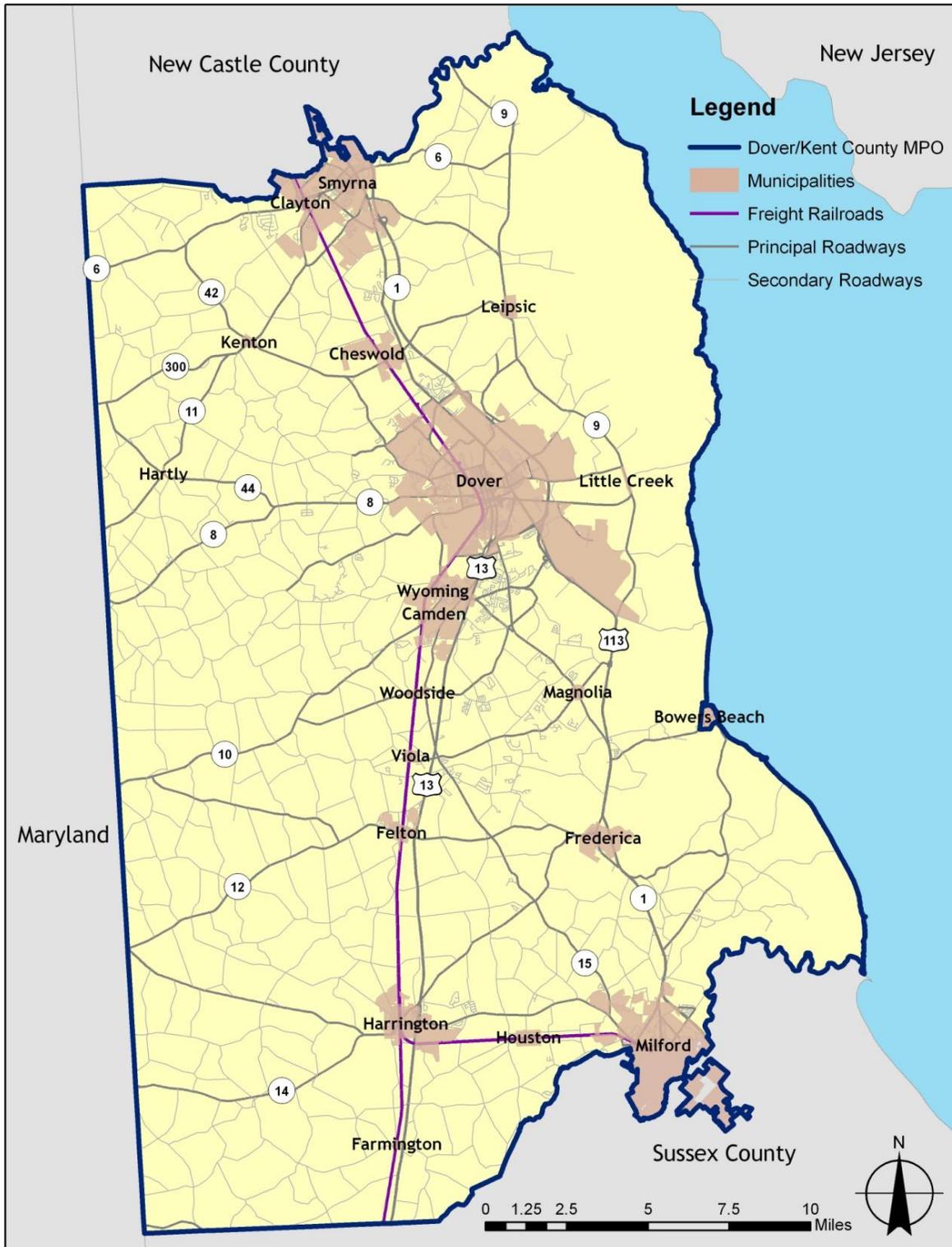
Rail lines offer important economic benefits for industrial development. Land uses mentioned in the Dover and Kent County comprehensive plans designate areas along rail lines for industrial uses. Kent County has 42.3 miles of active freight railroad lines, operated by Norfolk Southern. The Federal Railroad Administration (FRA) has designated the Delmarva Secondary and Indian River Secondary tracks, which run through Kent County, as Class 3 tracks. At maximum, trains on these tracks run at 40 mph. The Indian River Secondary Track splits from the Delmarva track at the Harrington Yard. **Exhibit 3.31** illustrates the following rail lines:

**Delmarva Secondary Line** – This is the longest rail line in Kent County, spanning 34.5 miles within the county. It is primarily a north-south connection along Delmarva, operated by Norfolk Southern. The line roughly parallels U.S. 13 and continues south into Maryland, where it connects to Bay Coast Railroad lines in Pocomoke, Md., and to a barge that floats rail cars across the Chesapeake Bay at Cape Charles, Va. (allowing for a redundant, but very low volume, rail connection onto the Delmarva Peninsula). To the north, this line connects to the Northeast Corridor at Newark, serving many destinations in the northeastern United States. Nearly 39 percent of commodities carried here are chemicals, followed by agriculture products at 36 percent and 16 percent for coal and paper products.

**Indian River Secondary Line** – Norfolk Southern operates this line in Kent County. It runs due east through Houston to Milford, after splitting from the Delmarva Secondary Line at the Harrington Yard. The line continues south on the east side of U.S. 113 in Delaware, covering 7.8 miles in Kent County. Coal accounts for nearly 41 percent of commodities, followed by 38 percent agriculture products and 15.6 percent in construction aggregates.

As required under the new Federal transportation authorization, Moving Ahead for Progress in the 21<sup>st</sup> Century (MAP-21), DelDOT, in partnership with the Wilmington Area Planning Council, will be organizing a Freight Advisory Committee. The Committee is expected to begin meeting in 2013. The Dover/Kent County MPO will also be represented on the Committee, to assist the Department in addressing freight issues in Kent County.

Exhibit 3.31: Freight Rail Lines



Source: DelDOT Planning

### Freight Rail Yards and Transfer Facilities

Additional intermodal transfer centers, switching yards, and similar facilities greatly increase the ability of rail transport to capture additional traffic, which might otherwise travel its entire journey by truck. Kent County has several such facilities in operation.

- **Corrado America** (not currently in operation) – A rail-to-truck bulk commodity transfer facility, owned by Corrado America, exists in Felton for the transfer of aggregates.
- **Jell-O Yard** – This yard services the General Foods and Proctor & Gamble plants on the west side of Dover. Here, many cars of raw materials arrive from various points in North America, for the manufacture of paper and food products. This location is not fenced and is adjacent to an increasingly busy New Burton Road and residential neighborhoods. This remains a concern among some local residents and lawmakers.
- **Harrington Yard** – Harrington Yard is a location where train crews report to duty. Here, scheduled freights begin and end their journeys for destinations throughout the United States. Also, local trains from the Indian River Secondary Line and destinations on the lower Delmarva Peninsula, begin and end their journey at Harrington. The switching movements needed to build and break train consists can cause traffic issues in downtown Harrington by blocking at-grade crossings.

### Passenger Rail

Kent County has no regularly scheduled passenger rail service. The nearest passenger stations are Newark, Churchmans Crossing, and Wilmington in New Castle County. From 2001 to 2004, DelDOT studied the feasibility of commuter rail service between Wilmington and Dover and concluded that the land use pattern, total population and densities did not support passenger rail.

However, the Delaware Transit Corporation, with support from the Maryland Department of Transportation, is conducting a Delmarva Rail Study to explore the feasibility of intercity passenger rail to lower Delaware and/or the Ocean City, Md. Areas. This would be an Amtrak-type service, with one-to-two round trips per day, and from destinations on the Northeast Corridor such as Washington, D.C. or New York, stopping in Dover and potentially other locations in Kent and Sussex Counties. This would require a lower level of infrastructure improvements than commuter service. Estimates of capital, operating and maintenance costs vs. ridership and revenue for various service options will be complete in 2012, and will determine if the project should advance.

### 3.19 Aviation

Kent County has seven aviation facilities available for public use. The primary aviation facility in Kent County is Dover Air Force Base (DAFB), which permits limited public service at the Civil Air Terminal. Charter aircraft operations are limited, and are authorized on a case-by-case basis. DAFB is the largest military or civilian aerial port facility on the East Coast and is an important part of Kent County's economy. In addition to the facilities at DAFB, five of Kent County's other public-use airports provide general aviation services. Another facility, the DelDOT Helistop is a publicly-owned helicopter landing pad, located at the DelDOT complex in Dover, and available for public use. The County continues to pursue opportunities for economic development within these facilities and in the surrounding areas.

### **Air Cargo Ramp at Dover Air Force Base**

The DFAB's primary mission is to house C-5 and C-17 transport planes. Civilian use is secondary. A joint-use agreement between the United States Air Force and DelDOT authorizes DelDOT to permit scheduled commuter or commercial charters, as well as general aviation aircraft that the installation commander has approved in advance. The ability to land large planes makes this facility unique in Kent County.

The Air Cargo Ramp (formerly known as the Civil Air Terminal) is instrumental in facilitating NASCAR events at Dover Downs. The Air Cargo Ramp's ability to accommodate high numbers of operations and the large, private airplanes that racing teams employ, keeps it a competitive venue. Potential for service level and facility expansion might be constrained by the primacy of the Air Force mission at the base.

There are discussions to expand the parking apron adjacent to the Air Cargo Ramp to accommodate large civilian cargo planes that serve the Air Base. The Air Cargo Ramp will need more parking pads if the goal remains to increase in private/chartered passenger flights.

The Kent County AeroPark is a 115-acre county-owned industrial/business park located adjacent to the Ramp, and adjacent to the perimeter of DAFB. County officials would like to attract industries such as manufacturing, publishing, and warehousing to take advantage of available land and buildings. The Kent Economic Development Office is committed to work with Dover Air Force Base and its related businesses, to protect and support its mission. Kent County, DelDOT, and the Delaware Office of Economic Development (DEDO) have partnered and are evaluating different options to expand the aeronautic capabilities in this area. The project is currently undergoing environmental studies (wetlands and archeological) associated with the expansion of the Air Cargo Ramp. The studies are currently anticipated to be completed in late 2013.

### **Delaware Airpark**

DelDOT has owned the Delaware Airpark in Cheswold since 2000. Operated by the Delaware River and Bay Authority (DRBA), the airport serves general and corporate aviation in Kent County, as well as Delaware State University's Aviation Flight Training Program. The River and Bay Authority plans to expand the runway in 2013. DRBA also is interested in pursuing safety upgrades to provide additional private and corporate airport capacity and enhanced safety and security. DelDOT is committed to protecting the airport by working with the local land use agencies to locate compatible development and discourage incompatible uses.

### **Other Aviation Facilities**

Other public use facilities that provide general aviation services include Smyrna Airport, Chandelle Estates Airport, Jenkins Airport, Chorman Airport, and the DelDOT Helistop. All the airports are privately owned and operated facilities. The DelDOT Helipad is state owned for public-use. Most privately owned airports support some sort of business, from recreational flying to equipment salvage and repair. Crop dusting, or the aerial application of fertilizers and pesticides, remains an important activity associated with private airports. The state contracts crop dusters for mosquito control spraying, as well. These activities are crucial to the viability of Delaware's agricultural community and general quality of life.

The annual number of operations at each public-use facility is well within the facility's capacity for annual service volume. However, most of the privately owned airfields are anticipated to have inadequate capacity within the next 15 to 20 years. Delaware has many excellent air cargo facilities, including Dover Air Force Base, which could accommodate large cargo planes, but there is not a market for high-value imports/exports at present that could efficiently utilize that capacity. UPS has a major facility in Philadelphia, and FedEx has a facility in Salisbury, Md. This makes truck delivery to and from those locations cost-effective.

DelDOT completed an Air Cargo Study for the Civil Air Terminal in 2006. The study recommended expanding the facility to accommodate commercial (privately-owned) air cargo that serves the military base. This activity could lay the groundwork for additional nonmilitary-oriented commercial aircraft in the future as demand grows in the region, but the major challenge is funding these types of expansions. Delaware continues to make progress on implementing recommendations from the 2008 Delaware Aviation System Plan. While there is no current progress on attracting commercial aviation service to Kent County, the provision of general aviation services continues to be a high priority for the county. An update of the statewide Aviation System Plan will be completed in 2013.

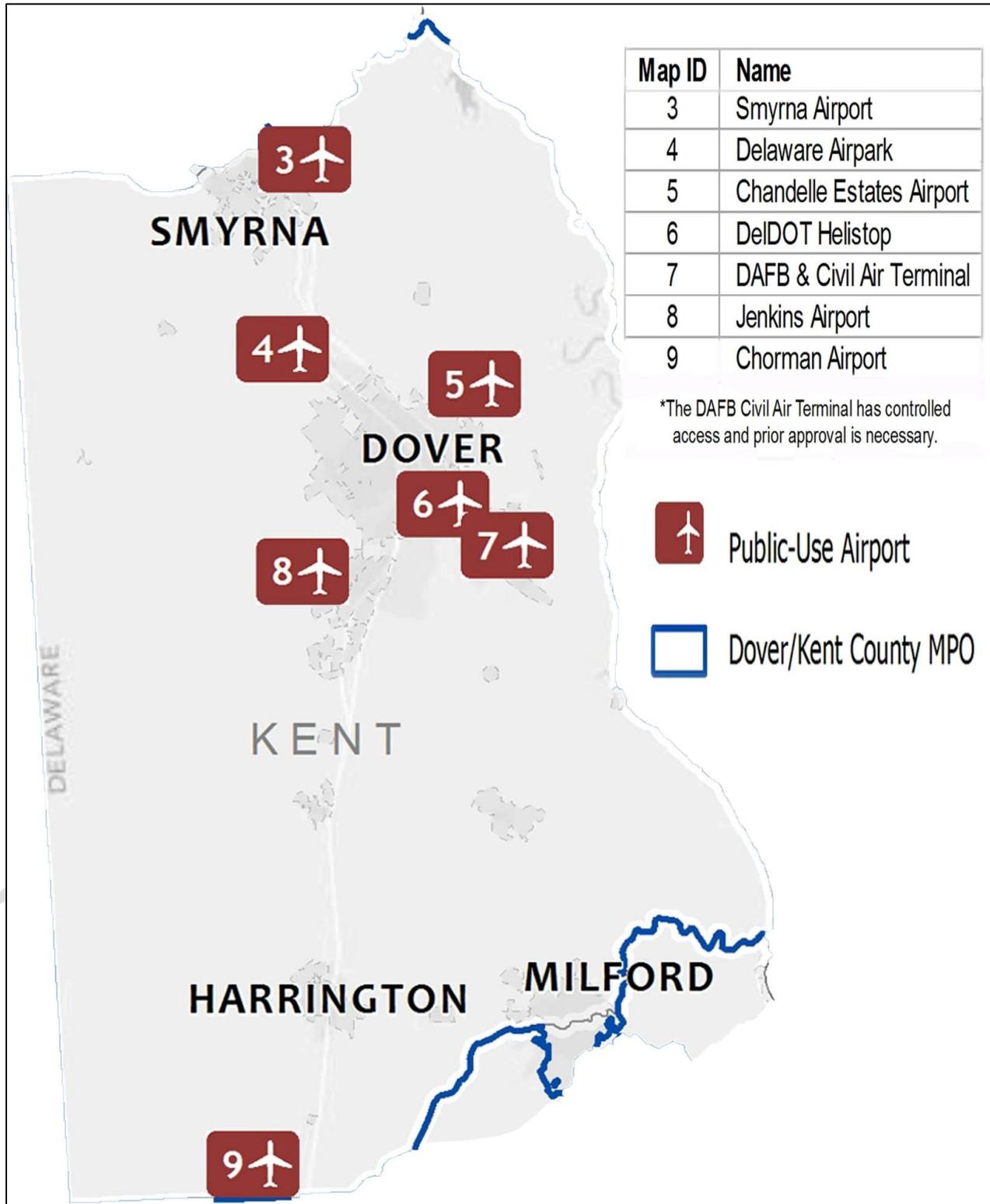
### **3.20 Marine**

Rivers, ports, bays, and estuaries are all used for movement of people, goods, services and for recreation. The Delaware Bay, Leipsic River, St. Jones River, Murderkill River, and other waterways historically filled these uses. The one existing waterborne cargo operation is fuel delivery by barge at Port Mahon. The estuary formed by the Delaware River and Delaware Bay meets the Atlantic Ocean at Cape Henlopen, south of Kent County.

Part of the Intercoastal Waterway, which runs along the entire eastern seaboard, this estuary is also a major shipping channel serving the ports of Wilmington and Philadelphia. Most of the bay coastline in Kent County is tidal marsh, and is home to the Bombay Hook National Wildlife Refuge and other important wildlife areas. Most of the water access in the county, therefore, is in small-scale recreational use. Commercial and recreational fishing facilities in Bowers Beach are the most significant docking facilities in the county. Smaller operations exist in Leipsic.

The environmental sensitivity of the area's waterways and the protective restrictions of the Delaware Coastal Zone Act are important factors in determining the viability of waterborne commerce for Kent County. As a whole, the bay/river is the world's largest freshwater port, and the combined activities of the various shippers using it, rank the waterway second in the United States in total waterborne commerce. The Delaware River carries approximately 2,700 ships per year to and from several public ports and private industry facilities along its banks in northern Delaware, Pennsylvania, and New Jersey.

Exhibit 3.32: Summary of Airports



Source: DeIDOT Planning

## 4. Trends and Implications on Future Transportation Needs

How effectively transportation systems function affects the quality of the built and natural environments as well as the quality of life of residents and visitors. Transportation needs are determined by comparing the demand for movement of goods and people to the supply of transportation facilities. To understand the future transportation needs of Kent County, it is necessary to understand where people will live and work, the ways in which they will make use of the land, and the travel choices they will make. Various trends are examined and modeled to support identification of future transportation needs. This chapter discusses population and employment trends, transportation network use, future land use, and travel trends based on public opinion.

### 4.1 Population and Employment Trends

Population and employment trends compared with existing conditions indicate future transportation needs. The population and employment trends of the MPO region indicate potential deficiencies in the system if unfettered growth or even growth at a pace similar to recent periods continues. The MPO reviewed past trends and distributed projected future population growth to predict the future conditions of our transportation network. As described in subsequent pages, the transportation network may not be able to adequately accommodate the anticipated demands in some areas, based upon the additional vehicles that accompany most growth. The MPO adopted population projections using 2011 data from the Delaware Population Consortium (DPC). The consortium uses data gathered by the U.S. Census Bureau and other federal and state agencies and projects growth based on national trends, local land use plans, local trends, and local knowledge provided by area planning officials. The DPC collects data at the county level. To use the data in transportation planning, it is distributed among Traffic Analysis Zones (TAZs), which are the base units of DelDOT's travel demand model. The Census Bureau requested the MPO create larger geographies to cover a greater population and designate them as Transportation Analysis Districts (TADs). **Exhibit 4.1** represents the area covered by each TAD. **Exhibit 4.2** portrays the 2010 population density in the MPO area by TAZ. For presentation and analysis purposes, the Traffic Analysis Zones are combined to create Traffic Analysis Districts (TADs). The table in **Exhibit 4.3** documents the largest growth is expected to occur in the Milford TAD area, followed by the Magnolia TAD area.

Exhibit 4.1: Traffic Analysis Districts

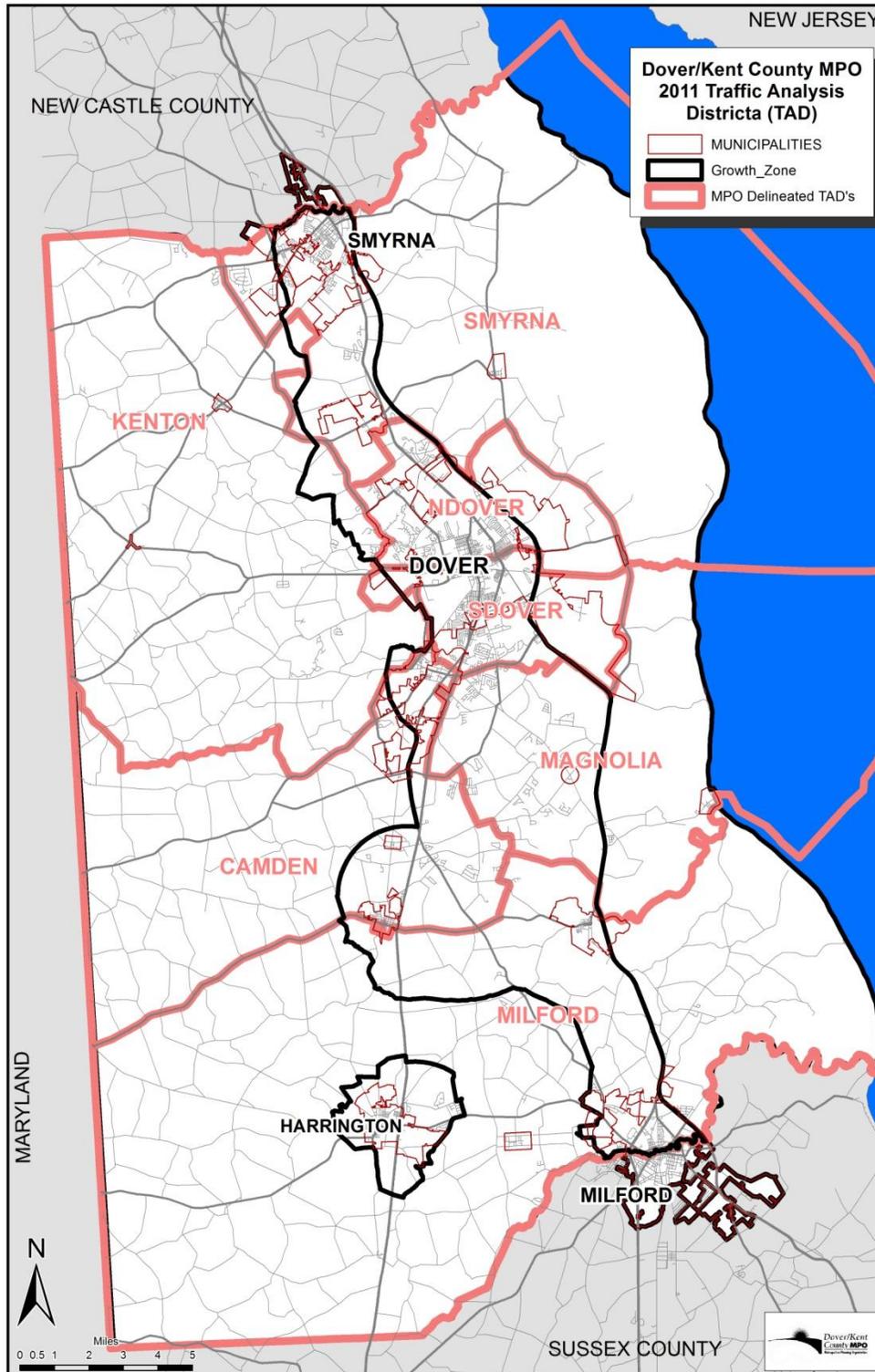
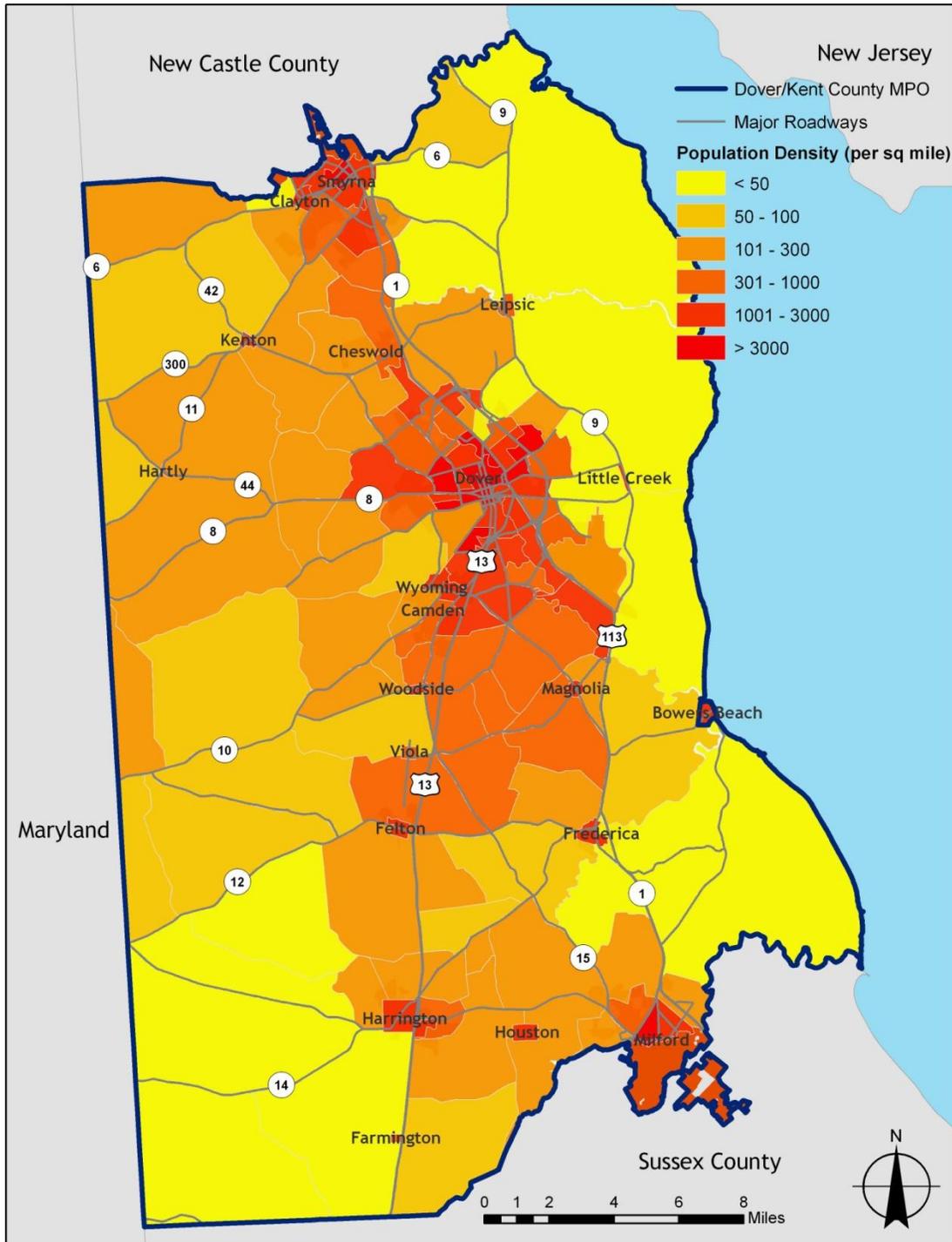


Exhibit 4.2: 2010 Population Density



Source: Dover/Kent County MPO

**Exhibit 4.3: Population Projections by Traffic Analysis District (TAD)**

MPO Area by TAD	2010	2020	2030	2040	% Change 2010 to 2040
Camden TAD	20,307	22,892	24,563	25,917	27.6%
Kenton TAD	21,211	23,239	24,588	25,904	22.1%
Magnolia TAD	19,352	21,966	23,985	24,980	29.1%
Milford TAD	24,922	29,304	32,914	35,811	43.7%
North Dover TAD	24,971	26,334	27,532	28,666	14.8%
South Dover TAD	24,495	26,679	28,214	29,973	22.4%
Smyrna TAD	27,052	29,908	32,374	34,608	27.9%
<b>Total</b>	<b>162,310</b>	<b>180,321</b>	<b>194,196</b>	<b>205,049</b>	<b>26.3%</b>

*Source : US Census, Delaware Population Consortium, Dover/Kent County MPO*

**4.1.1 Total Population**

The DPC released their 2012 edition of population projections in October 2012, so only summary numbers are reported in this plan. Compared to New Castle and Sussex counties, the Kent County population is projected to continue to have the smallest population in the state. The population of Kent County is projected to increase 26 percent between 2010 and 2040 as compared to the state’s 25 percent projected increase for the same period. This growth puts increased demands on the existing transportation network in Kent County.

**Exhibit 4.4: Population Projections**

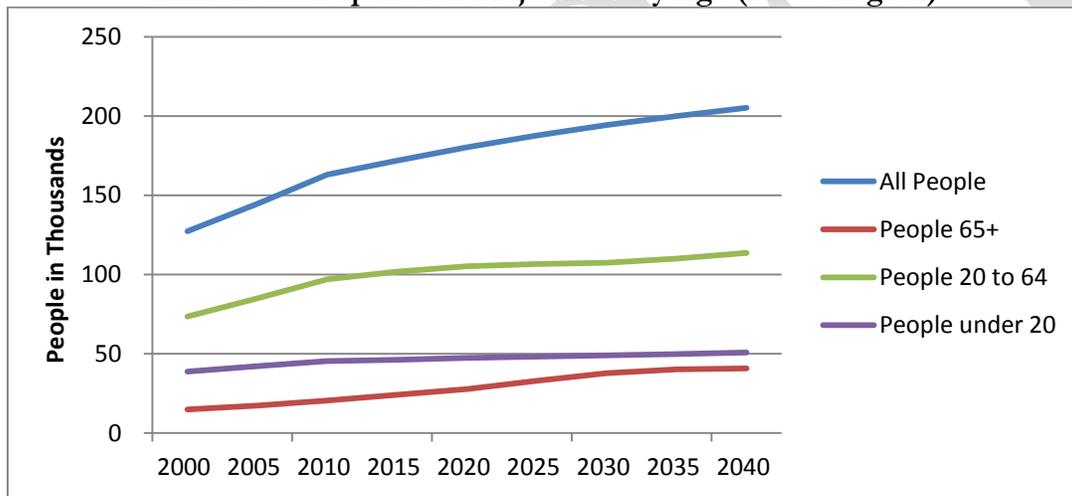
Area	2010	2020	2030	2040
State of Delaware	901,208	996,150	1,060,249	1,099,293
Kent County	162,310	180,321	194,196	205,049

*Source : Delaware Population Consortium, 2012*

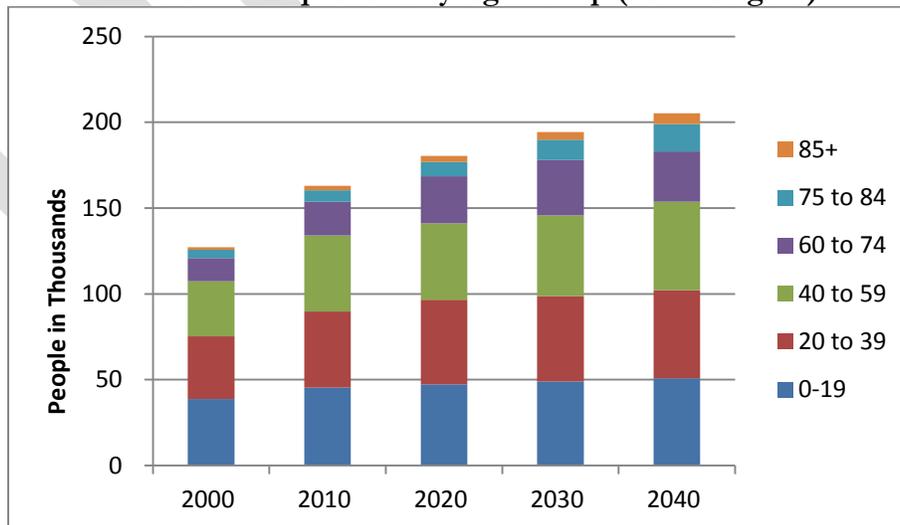
4.1.2 Age

The Dover/Kent County MPO region has an aging population as shown in **Exhibit 4.5**. The population over 65 years will grow at a faster rate than the population of youth or the population of working age residents. This population is projected to slow near the year 2040. The relative proportion of the population by age group is included as **Exhibit 4.6**. This chart again shows the increase of the older population and the relative extraordinary growth of the elderly over 85 years. The proportion in the age group over 60 years is projected to grow from 16% in 2000 to 25% by 2040. While the whole population of the County is projected to increase through 2040, the proportion under 20 and those between 20 and 39 will decrease in the period. The proportion between 40 and 59 is expected to remain approximately 1/4 of the residents. Those older will create an increasing presence in the County, in terms of projected numbers and in proportion of the population. As the aging population continues to grow, the demand for medical transportation and other coordinated human services transportation is also expected to climb. Mobility and access will become increasingly important for this population, and will need to be considered in decision-making for multiple modes, including roadway design standards and public transit.

**Exhibit 4.5: Population Projections By Age (MPO Region)**



**Exhibit 4.6: Population by Age Group (MPO Region)**



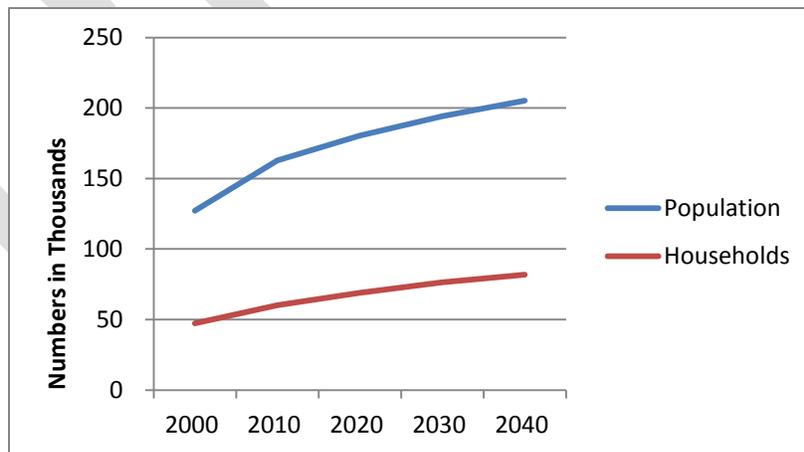
4.1.3 Households

Population and household size, coupled with levels of automobile ownership, can indicate demand for transportation. As shown in **Exhibit 4.7**, according to the Delaware Population Consortium projections, an average of 2.71 persons resided in each household in 2010. The projected person per household average is expected to continue to decrease to 2.48 persons by 2040 while the number of households is expected to increase. Thus, the number of persons living in Dover/Kent County MPO households will decrease. Nonetheless, the projected increase in households translates to a greater demand for goods, services, and employment, thereby placing a greater demand on the transportation system. At the same time, smaller household sizes combined with larger numbers of households means more trips per person. **Exhibit 4.8** provides a graphical representation of the projected trends.

**Exhibit 4.7: Kent County Population and Household Size**

Year	Population	Households	Average Persons per Household
2010	162,310	60,277	2.71
2020	180,321	69,572	2.59
2030	194,196	76,501	2.52
2040	205,049	81,450	2.48

**Exhibit 4.8: Kent County Population and Households**



#### 4.1.4 Employment

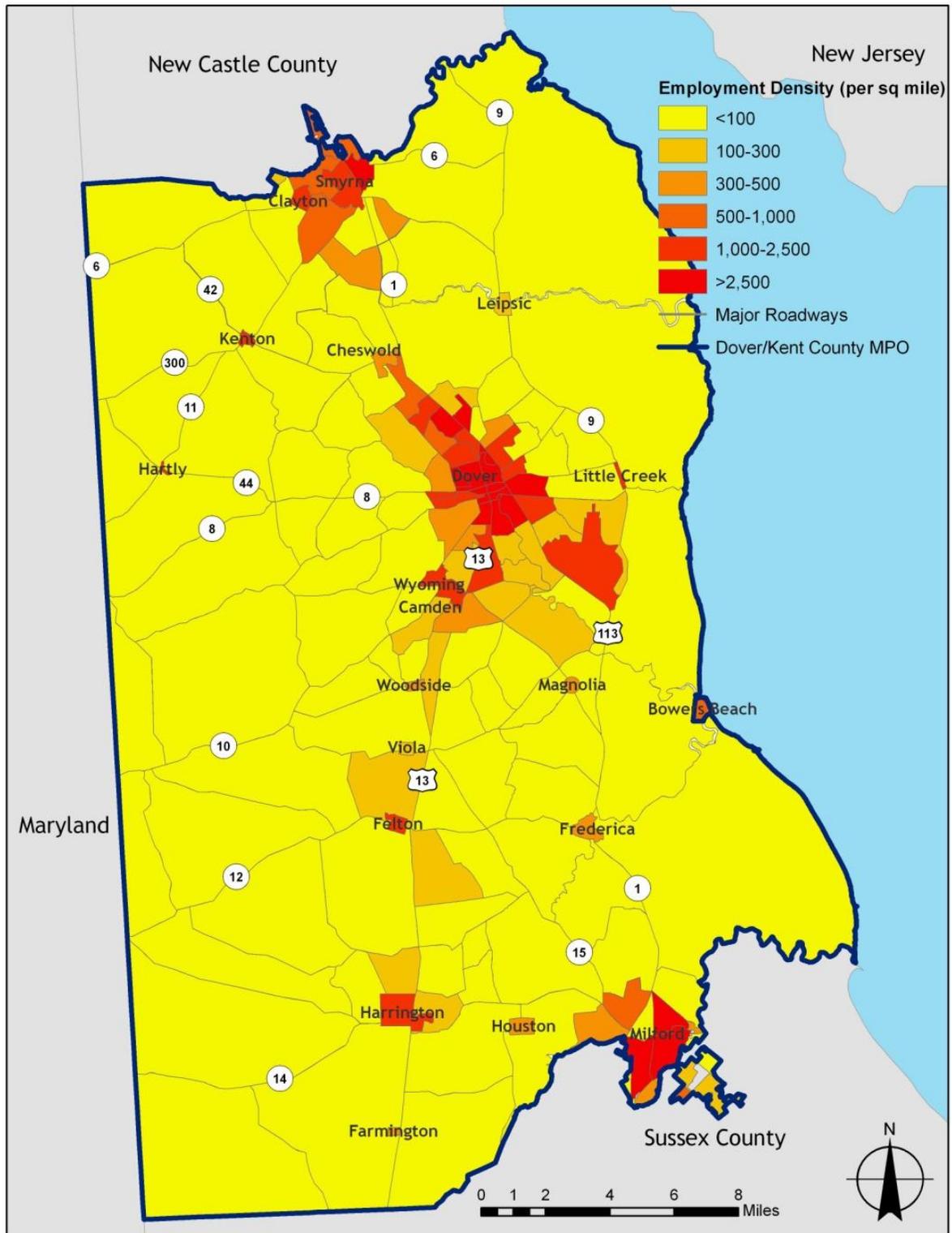
Employment is expected to increase in the County at rates consistent with the population increases. By 2040, employment is expected to reach 71,488, which represents a 15 percent increase over the 2010 employment of 61,913, as shown in **Exhibit 4.9**. The biggest increases are expected to occur in the Milford area. **Exhibit 4.10** shows employment density per square mile in 2040. Government and community services are expected to remain the most important segment of the economy. Dover Air Force Base remains a major engine of economic stability in the area, being directly responsible for 1,040 civilian and 5,300 military jobs and having an economic annual impact of over \$460 million (based on 2010 information).

**Exhibit 4.9: Dover/Kent County MPO Employment Change**

MPO Area by CCD	2010	2020	2030	2040
Camden TAD	3,103	3,276	3,418	3,581
Kenton TAD	1,503	1,587	1,656	1,735
Magnolia TAD	1,474	1,556	1,624	1,701
Milford TAD	8,463	8,935	9,321	9,803
North Dover TAD	15,071	15,911	16,599	17,393
South Dover TAD	24,770	26,152	27,281	28,586
Smyrna TAD	7,529	7,949	8,293	8,689
<b>Total</b>	<b>61,913</b>	<b>65,367</b>	<b>68,191</b>	<b>71,488</b>

*Source : Delaware Population Consortium Projections, 2011 and Dover/Kent County MPO*

Exhibit 4.10: Dover/Kent County MPO 2040 Employment Density



Source : Dover/Kent County MPO

**4.1.5. Projected Vehicle Miles Traveled**

As part of the air quality conformity analysis conducted for the MTP update, DelDOT’s travel demand model (CUBE Voyager 6.0) estimated the existing and projected vehicle miles traveled (VMT) in Kent County. Listed below in **Exhibit 4.11** and **Exhibit 4.12** are the projected Annual VMT and the Average Daily VMT, respectively.

**Exhibit 4.11: Kent County Annual VMT**

	2012	2020	2030	2040
VMT (Billions)	1.70	2.04	2.33	2.86

*Source: DelDOT Planning*

**Exhibit 4.12: Kent County Average Daily VMT**

	2012	2020	2030	2040
VMT (Millions)	4.65	5.56	6.37	7.81

*Source: DelDOT Planning*

In summary:

- The annual vehicle miles traveled in Kent County are projected to increase over 1 billion miles between 2012 and 2040 (a 68% increase).
- The average daily VMT in Kent County is projected to increase 68% between 2012 and 2040.

Based on information provided by DelDOT Planning, through the Peninsula travel demand model, there are several important factors that are directly responsible for the projected 68% increase in VMT. In accordance with Federal requirements, the travel demand model is based on past trends. As shown in **Exhibit 4.13**, the statewide VMT has increased on a nearly linear path since 1970.

**Exhibit 4.13: Statewide Vehicle Miles Traveled**

Year	Annual Vehicle Miles Traveled	% Increase
1970	3.00 Million	---
1980	4.22 Million	40.7%
1990	6.55 Million	55.2%
2000	8.22 Million	25.5%
2010	9.04 Million	10.0%

There are several factors that have led to the steady increase in VMT over the past 40 years. The first relates to the land use patterns over the past few generations. In general, the predominant land use pattern within Kent County over the past 40 years has been the single family residence, usually built outside of municipal limits. The vast majority of the newly constructed homes during this time frame have been located beyond a reasonable walking distance to a bus route, and are located in areas where it is not feasible to walk or bike to employment, shopping, or recreational areas. Given this land use pattern, the only feasible alternative for these residents is the automobile. An increase in homes has played a major role in the increase in VMT, due primarily to the fact that these homeowners have no other reasonable alternative to travel. In addition, as the development activity has increased in formerly rural areas, farther away from employment centers and shopping areas, the distance required to travel from a residence to an activity (grocery store, restaurant, etc) has subsequently increased. This is also another rationale explaining the reasons for the substantial increase in VMT through the past 40 years. Finally, the household demographics have changed through the years. As taken from information provided by DeIDOT, the household size has decreased between 1960 and 2010. This trend, as evidenced below, is expected to continue through 2040.

<b>1960</b> – 3.65 persons/home	<b>2010</b> – 2.61 persons/home	<b>2040</b> – 2.41 persons/home
1000 homes = 3650 people	1000 homes = 2610 people	1000 homes = 2410 people
1000 people = 274 homes	1000 people = 383 homes	1000 people = 415 homes

In summary, by 2040, there will be a 50% increase in the number of homes required to house the same number of people that were housed in 1960, due to the decrease in family size.

The MTP specifies strategies and actions that will provide additional transportation alternatives for residents of Kent County. These actions, when combined collectively with additional mixed-use, in-fill development in urban areas (particularly near transit routes), should help to reduce dependence on the automobile. In particular, one of the most effective strategies to reducing dependence on the automobile (and subsequently reducing VMT) is to locate commercial destinations (neighborhood shopping, restaurants, employment, etc.) as close as possible to residential communities. Studies have shown that the vast majority of trips taken within ½ mile of a destination are

done by walking, not a car. Successful mixed-land use communities have been built recently in Sussex County, including the Village of Five Points and Paynter's Mill, where a variety of transportation alternatives are provided as part of the community design.

The DelDOT travel demand model (and the corresponding VMT) is also based on the origins and destinations of different trips. As noted below, there are three types of trips that the model considers. The numbers represent the approximate numbers associated with each type:

- Internal to internal (trips within Kent County – 50% to 65%)
- Internal to external/External to internal (trips that originate outside of Kent County but terminate in Kent County, or vice versa – 15% to 25%)
- External to external (trips that pass through Kent County on their way to other destinations – 20% to 25%)

The strategies included in the MTP can help to address VMT associated from the internal to internal trips. However, a significant portion of the VMT in Kent County (35% - 50%) is derived from non-Kent County trips, either those that originate elsewhere or those that are simply passing through via U.S. 13 or Route 1.

By 2040, the VMT is projected to increase 50% overall in the State of Delaware. DelDOT's travel demand modeling analysis indicates the following statistics related to the sources of the projected 50% overall growth:

- VMT increase from existing population – 20%
- VMT increase from population growth – 20%
- VMT increase from external traffic – 10%

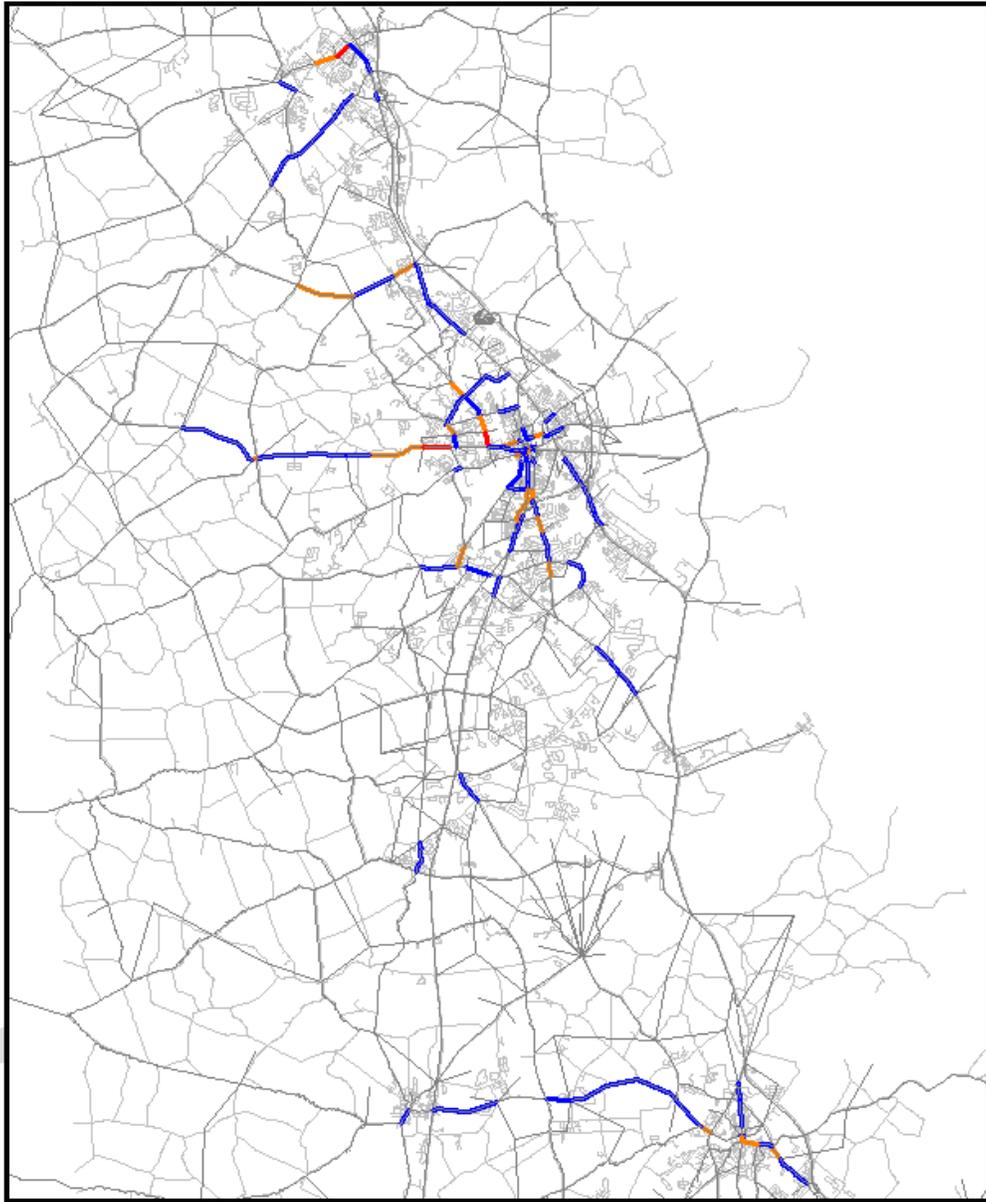
Based on past trends, current projections based on approved land use plans, and the influence of "external" traffic volumes, it is unlikely that VMT will decrease unless a comprehensive land use and transportation plan is enacted that is designed specifically to address VMT. Future residents of subdivisions that are already approved (but not built) will have little choice but to use their car to travel around the County, based on the location of these communities and their proximity to commercial and employment areas. A comprehensive land use and transportation plan that did address VMT would have to adopt appropriate and realistic VMT reduction goals as a leading performance measure, with specific milestones incorporated into the plan.

As part of its travel demand modeling efforts, DelDOT has quantified VMT reductions based on different land use scenarios, on a site specific basis. The applications are still in its infancy, but in the future, DelDOT may be able to assess the VMT impacts for a wide variety of specific land use designs.

#### 4.1.6 Projected Level of Service

In addition to the projected vehicle miles traveled, the DelDOT travel demand model also estimated future Level of Service (LOS) for a variety of major roads within Kent County. Level of Service is a rating system used to evaluate the effectiveness and efficiency of the transportation system. It is based on a numerical grading system, ranging from Level of Service A (representing optimum free flow conditions) to Level of Service F (indicating a system with more demand than capacity). Listed in **Exhibit 4.14** and **Exhibit 4.15** are the 2012 Level of Service and projected 2040 Level of Service for the major roads in the County.

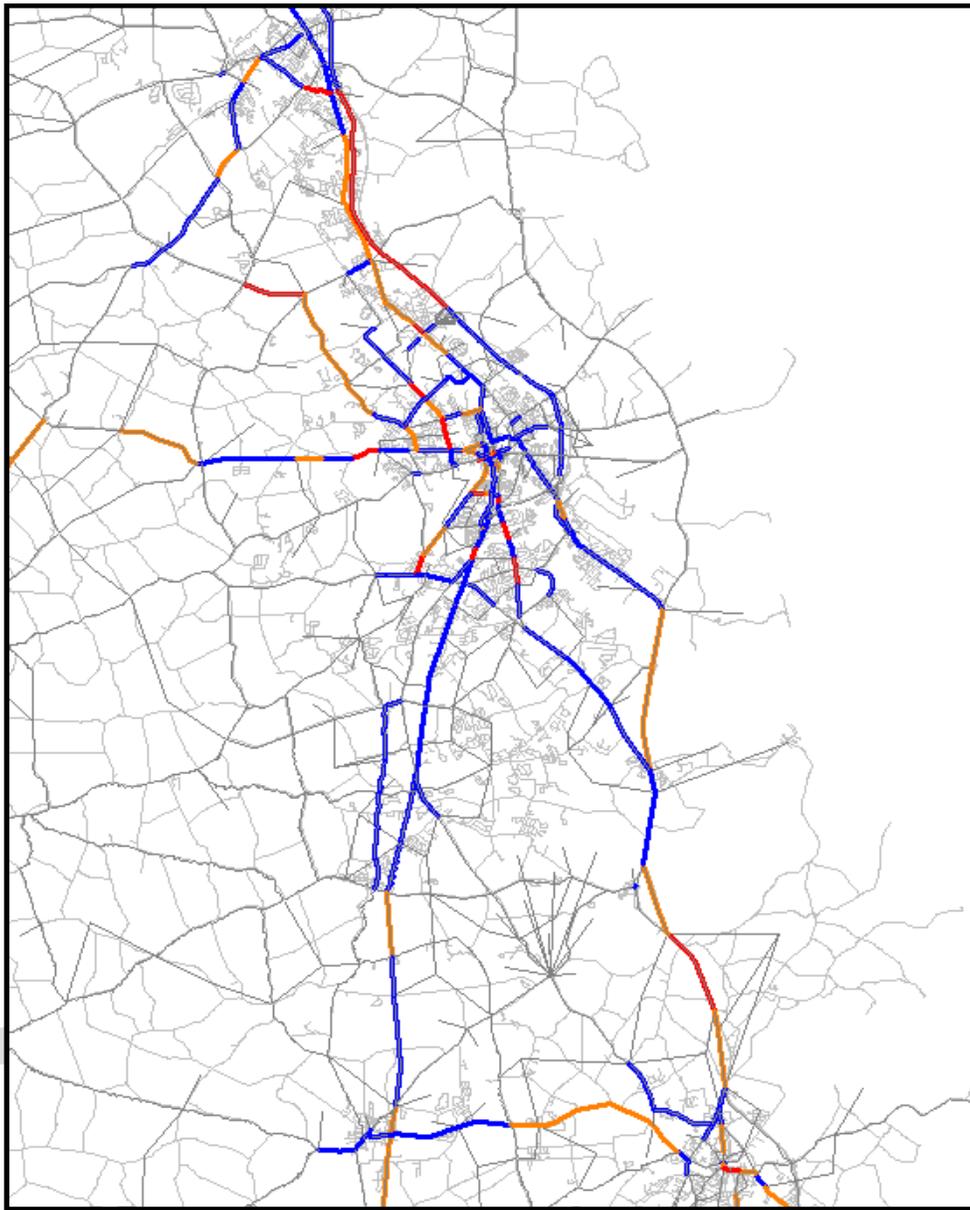
Exhibit 4.14: 2012 Level of Service



Source: DelDOT Planning

Color	Level of Service
Grey	A – C
Blue	D
Yellow	E
Red	F

Exhibit 4.15: 2040 Projected Level of Service



Source: DeIDOT Planning

Color	Level of Service
Grey	A – C
Blue	D
Yellow	E
Red	F

In summary:

- Based on current traffic data, LOS E and LOS F roadways are concentrated in Dover, with several poor LOS road sections in Smyrna and Milford.
- Existing LOS E and LOS F areas include portions of the following roads, as shown in **Exhibit 4-14:**
  - U.S. 13 (south Dover)
  - Route 8 (west Dover)
  - South State Street (south Dover)
  - Saulsbury Road (west Dover)
  - Route 6 (Smyrna)
  - Downtown Milford
- Based on projected 2040 traffic conditions, there will be significantly more road sections in Kent County with a LOS E or LOS F condition. These areas include portions of the following roads, as shown in **Exhibit 4-15:**
  - U.S. 13 (through Dover, north Dover, south Dover)
  - Route 1 (north Dover, south Dover, north Milford)
  - Route 8 (west Dover)
  - Route 14 (between Harrington and Milford)
  - Kenton Road
  - Saulsbury Road
  - Division Street
  - New Burton Road
  - South State Street

## 5. Transportation Strategies and Actions: 2013– 2040

Chapter 5 discusses the fundamental strategies that form the framework around which the Metropolitan Transportation Plan is constructed. This chapter also discusses transportation investment strategies from the Strategies for State Policies and Spending, as well as other state agency plans. This chapter further recommends actions that should be taken to implement the strategies.

### 5.1 MTP Framework

#### 5.1.1 Fundamental Strategies

There are five fundamental strategies that form the framework of the MTP. The strategies are listed in order of their relative importance and impact on the region and its residents. The more cost-effective strategies are listed with a higher preference.

These strategies were developed to ensure that investments are made to support the vision of this MTP. The strategies are made to concentrate transportation investments in areas where growth is needed and is desirable. Using the fundamental strategies, transportation investments can be coordinated with land use decisions to create a comprehensive transportation system for the Dover/Kent County MPO region.

These strategies concur with the *Strategies for State Policies and Spending* which describes guidelines regarding the general types of investments to be made in different areas of the County as a whole. These strategies support the vision of this MTP update and the MTP supports the strategies. These initiatives guide growth into areas that are prepared for infrastructure investments and are represented in Comprehensive Plans.

Each of the five fundamental strategies is briefly discussed below and then in detail as components of plans and guidance, including associated actions. The actions to meet the strategies that guide the MTP are identified below.

#### ***Fundamental Strategy 1: Preserve and Maintain the Existing Transportation System***

Preserving and maintaining the existing transportation system is the first step to maximizing the value of the network. The base transportation system should be maintained to operate at the same functional level in 2040 as in the present. A reduction in the network’s operating capacity should be prevented. Maintenance must also occur to ensure the safe movement of goods and people. By guiding development, managing access, and taking active steps to preserve the existing transportation system, investments that have already been made can largely be maintained.

**FUNDAMENTAL STRATEGIES**

- 1. Preserve and maintain the existing transportation system while improving safety and security**
- 2. Improve the management of the existing transportation system**
- 3. Develop and expand other modes of transportation**
- 4. Provide additional system capacity**
- 5. Focus transportation investments in growth areas**

***Fundamental Strategy 2: Improve the Management of the Existing Transportation System***

Improving efficiency through the use of technology, such as intelligent transportation systems, to better manage the existing system can increase capacity. DelDOT continues to improve the current system's capacity through its Transportation Management Program and through implementation of various technology and management strategies referred to as Integrated Transportation Management Systems (ITMS). Actions which help improve management of the existing transportation system can avert the need for new roadway facilities, which in turn prevents adverse social and environmental impacts and allows limited funding resources to be used towards the management of the existing system.

***Fundamental Strategy 3: Develop and Expand Other Modes of Transportation***

Providing transportation options in addition to the personal vehicle helps to meet the access and mobility needs of Kent County residents. Expanding facilities and services for modes such as walking, bicycling, ridesharing, and transit supports the plan's vision by increasing travel options for residents, providing basic mobility for those who cannot drive, and reducing the need to own an automobile. Expanding facilities and improving efficiencies for other modes including freight supports the vision by increasing economic development while reducing vehicle emission impacts on the environment. Actions that provide for other modes of transportation reduce reliance on personal vehicles and the need for new roadways.

***Fundamental Strategy 4: Provide Additional Roadway System Capacity***

Adding new roadways to increase capacity will be necessary where other strategies are not sufficient. Constructing new roads is not the emphasis of the MTP, but is a necessary part of producing and maintaining a sustainable transportation system. The emphasis for new roads should continue to be in Level 1 and Level 2 areas on the *State Strategies for Policies and Spending* map. Providing for additional roadway capacity includes complementary facilities for walking, bicycling, and transit.

***Fundamental Strategy 5: Focus Transportation Investments***

The first four transportation strategies need to be supported by focusing transportation investments in areas where growth and development are desired and should be supported. Consequently, the strategy of focusing transportation investments equates to the need to link land use and transportation. This strategy focuses on how existing land uses and land use plans are currently affecting and will shape future transportation demand. Delaware and Kent County have developed policies for focusing transportation investments, which are supported and embraced by this plan. These policies and the geographic areas associated with them are based on land use and the type of activities that would typically be in those areas.

**5.1.2 Kent County Comprehensive Plan**

Kent County began its efforts to focus development and infrastructure investments, including transportation, when it adopted its Growth Zone Overlay District in the 2008 *Comprehensive Plan*, which encompasses an area where Kent County determined new development should be encouraged. To that end, incentives such as area and bulk requirement reductions were developed to encourage development within the zone rather than in the more rural areas of the County.

The Growth Zone Overlay District was also an area that Kent County identified where infrastructure such as water, sewer, and transportation facilities existed or were planned to serve development. The Growth Zone Overlay District boundary, the geographic area of the district, was integrated into the *Comprehensive Plan*, as well as the Official Zoning Map.

Kent County also supports the focusing infrastructure investments through its Transfer of Development Rights program, adopted in August 2004. The purpose of the program is to enable owners of land located outside the designated Growth Zone Overlay District to sell the rights to develop their land to buyers for utilization within designated growth areas. The program was developed in response to increasing pressure to develop rural agricultural areas outside the designated Growth Zone Overlay District where essential infrastructure and support services necessary to sustain suburban and urban land uses do not exist and are not planned.

Kent County adopted its Adequate Public Facilities Ordinance (APFO) in October 2007 for the purpose of ensuring that essential public facilities, such as roads, needed to support new development meet or exceeds defined level of service standards and that they are available concurrent with the impacts of the new development. The ordinance ties the analysis of the impact of a proposed development to the development approval process in an effort to coordinate the provision of public facilities with development. This ordinance supports making infrastructure investments where they are needed most.

Kent County is currently not developing an update to the *Comprehensive Plan*. State regulations approved in 2011 indicate that a Comprehensive Plan must be reviewed every 5 years, and updated every 10 years. The Kent County *Comprehensive Plan* will be reviewed by November 2013, and it is currently valid until 2018. The MPO anticipates that many of the policies introduced in their 2008 plan will be retained in their next *Comprehensive Plan* update.

### **Municipal Comprehensive Plans**

As noted in Chapter 1, the comprehensive plans of several of the County's largest municipalities (Dover, Milford, and Smyrna) were reviewed as part of the MTP update. The following is a brief synopsis of the Transportation components of the comprehensive plans of each municipality.

City of Dover – The City of Dover Comprehensive Plan makes numerous references to the MPO's Long-Range Transportation Plan. Dover's Plan includes an assessment of the existing transportation system, projected conditions, transportation accomplishments, and an identification of future improvement needs. The Plan also includes a description of the transportation goals for the City, which essentially mirrors the goals stated in the Metropolitan Transportation Plan:

- Preserve and maintain the existing transportation system
- Increase coordination with agencies
- Develop and expand alternate modes of transportation
- Create recommendations and policies for roadways and development
- Reduce the air quality impact of automobile emissions

City of Milford – The City of Milford Comprehensive Plan includes a Transportation element that describes the local transportation needs (City streets) as well as those involving State-maintained roads. In summary, the Comprehensive Plan specifies the following objectives:

- Use transportation enhancements to help revitalize the downtown area
- Focus on sidewalk connections and pedestrian improvements in the downtown
- Develop alternate routes for truck traffic currently in the downtown
- Promote capacity preservation along Route 1 (support the proposed grade-separated intersections in the Milford area and limit the number of entrances along Route 1)
- Evaluate alternatives for a western bypass of Milford

Town of Smyrna – The Town’s Comprehensive Plan also includes a Transportation Plan, whose primary goal is “to achieve a safe, efficient, pleasant, multi-modal circulation system utilizing vehicular, transit, bicycle, and pedestrian travel.” The Plan references the following policies to support the overall goal:

- Establish a clear classification of roads intended for different purposes, particularly in areas of new development
- Review all development proposals for appropriate access and potential traffic impacts
- Develop a transportation plan for the town to serve new development and business-related traffic
- Develop a bicycle and pedestrian network
- Require sidewalks for new developments
- Ensure efficient transit services and facilities in town

### **Transportation Improvement Districts**

Most recently, Kent County developed Transportation Improvement Districts (TIDs) as part of the *Comprehensive Plan*. TIDs are a geographic representation of developing areas where the transportation system must be integrated with land use and significant investment in the system is required. Within these areas, the County, DelDOT, the MPO, and the community intend to develop specific plans for transportation improvements. TIDs support land use plans and have a network of roads that supports everyday transportation needs related to work, school, or recreation. TIDs are meant to reduce the number of required studies in a specific area by utilizing a master plan. The districts help to ensure the infrastructure improvements are keeping pace with new residential and commercial development. There is a more detailed description of TID’s in **Chapter 5.2.5** of the MTP.

### 5.1.3 Strategies for State Policies and Spending

As discussed in Chapter 1, the *Strategies for State Policies and Spending*, identifies levels of transportation investment areas. This is a guideline for the type of transportation investments to be made at each of these levels and where they should be located. **Exhibit 5.1** shows where each of the investment levels is identified in Kent County.

Each investment level and its corresponding transportation strategies are described in the following section. Definitions provide an explanation of the various investment levels with a description of each associated investment area. In addition to the investment areas associated with investment levels, there are areas that require resource protection and sustainable growth in environmentally-sensitive areas. There are four levels of investment areas. The levels range from urban areas with compact development to transitional areas to environmentally-sensitive and agricultural lands. The *State Strategies* are designed to both accommodate growth and economic development while preserving rural areas, the agricultural economy, and natural resources.

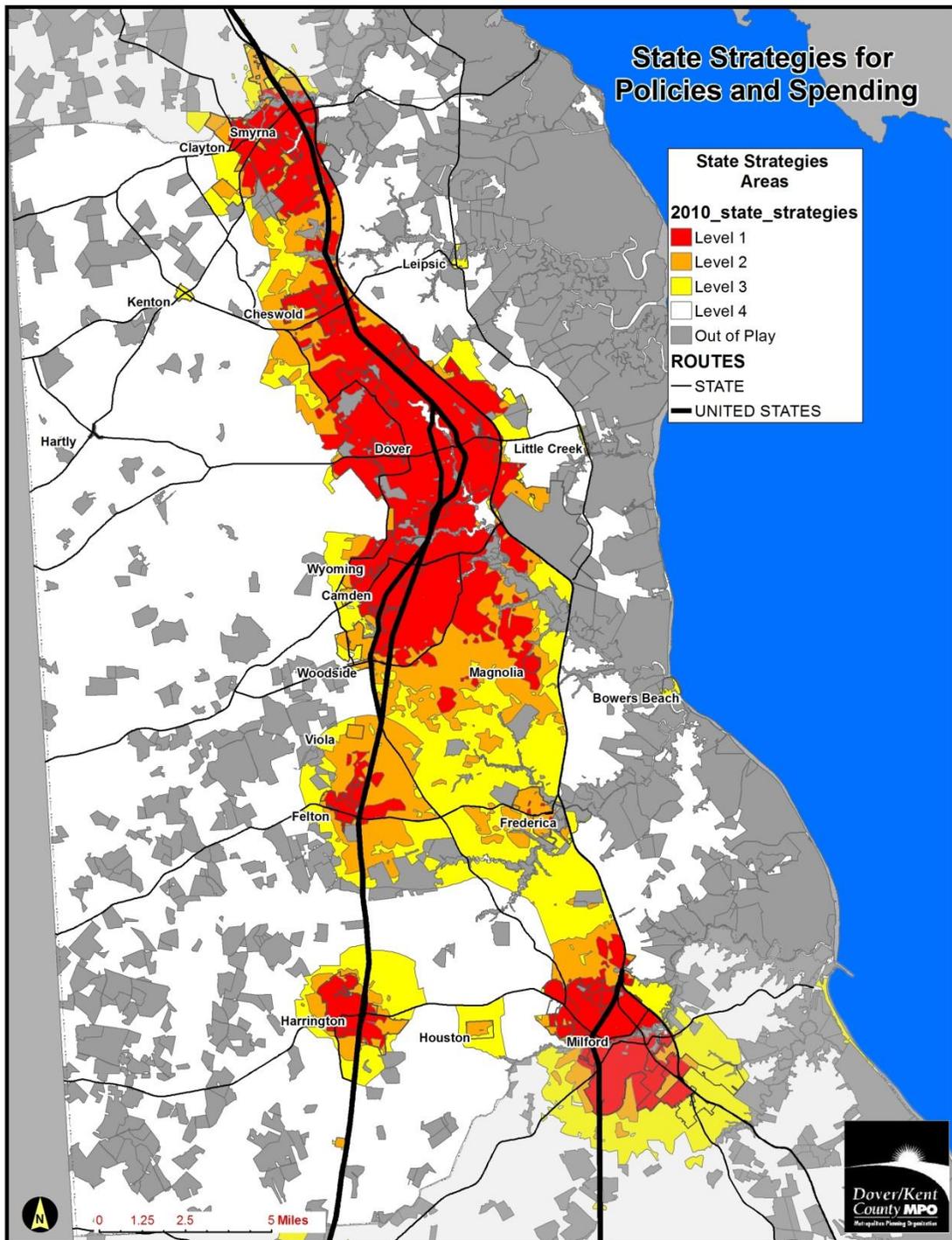
#### 5.1.3.1 Level 1 Investment Area and Transportation Strategies

People have historically congregated for access to convenient housing, commerce, and social interaction. Whether they are called villages, towns, or cities, these areas are characterized by a lively pace, a core commercial area, several modes of transportation, and a variety of housing options ranging from detached single family homes to multi-family apartments.

These population centers are often built around a traditional central business district or “downtown,” which offers a wide range of opportunities for employment, shopping, and recreation. They usually have a concentration of cultural and entertainment facilities, and a wide array of public institutions, services, and amenities (such as post offices, police and fire stations, libraries, hospitals, and other health care facilities). Although the scale of these population centers varies throughout the region, from the City of Dover to smaller towns such as Felton, the *Strategies for State Policies and Spending* document calls them all by one name: Level 1 Investment Areas.

These relatively compact patterns of development tend to have a human scale and are notably walkable, with the generally accepted range of one-quarter to one-half mile being the farthest that people are willing to walk to reach their destination. Beyond this distance, another mode of transportation is usually sought. Level 1 Areas provide a range of transportation choices, making it possible to pursue daily requirements by foot, bike, private vehicle, and in limited quantities and locations, by transit.

Exhibit 5.1: State Strategies for Policy and Spending



Level 1 Areas may also have overlooked opportunities in the form of underused or previously used sites (some of which are called “brownfields”), as well as a century or more of public and private investment in services, facilities, and buildings. These are places where significant investment already exists in roads, bridges, water and sewer systems, schools, commercial and industrial buildings, and houses.

Level 1 Areas provide regional and local identity and a sense of place to employment centers and recreational venues. The Dover/Kent County MPO region contains 20 incorporated communities varying in size from its largest city, Dover, to smaller towns such as Hartly and Farmington. Intensely developed areas in and around Dover, Milford, and Smyrna function in a similar manner. These Level 1 Areas drive Delaware’s economic engine.

The state’s goals clearly recognize the value of these Level 1 Areas and provide for their continued health and vitality through reinvestment and redevelopment, and through the efficient use and maintenance of existing public and private investments.

#### *Level 1 Transportation Strategies*

The following transportation strategies correspond with the characteristics of a Level 1 Area.

- Provide the greatest number of transportation options, emphasizing public transportation, walking, and bicycling.
- Make existing infrastructure and planned improvements as safe and efficient as possible.
- Projects typically should include new or expanded facilities and services for all modes of transportation, including public transportation facilities and services when compatible with development patterns.
- Projects include those that manage traffic flow and congestion, support economic development/redevelopment efforts, and encourage community connections.

#### **5.1.3.2 Level 2 Investment Area and Transportation Strategies**

These diverse areas surround many municipalities and also seem to be the most popular portion of Delaware’s developed landscape. They serve as transition areas between the Level 1 Areas and the state’s more open, less populated areas.

These areas are often characterized by a limited variety of housing types (predominantly detached single family dwellings); commercial and office uses serving primarily local residents (examples include food, drug, and video rental stores); and a limited range of entertainment, parks and recreation, and cultural and institutional facilities.

Innovative developers, architects, and land use experts recognize that the historic design of suburban developments could be improved by incorporating a mix of housing types and commercial uses as well as interconnecting roads, walkways, and bikeways between developments. They also recognize that compact development strategies may fit within areas adjacent to existing towns and population centers. These elements, designed with a greater concern for aesthetics and the environment, would revive the feel of the traditional “village,” providing a stronger sense of community.

## Level 2 Transportation Strategies

The following transportation strategies correspond with the characteristics of a Level 2 Area.

- Encourage sensible development through a planned set of phased transportation investments, land use coordination, and policy actions consistent with zoning densities and designations.
- Transportation projects should expand or provide roadways, public transportation, pedestrian walkways, bicycle paths, and other transportation modes.
- Manage traffic flow, support economic development efforts, and encourage connections between communities.

### 5.1.3.3 Level 3 Investment Area and Transportation Strategies

Level 3 Areas are portions of county-designated growth zones, development districts, or long-term annexation areas in municipal comprehensive plans that aren't in the Level 1 or 2 designations on the state's strategy map. In Kent County they mostly include areas outside Level 1 or 2 Areas built within the county-designated "Growth Zone Overlay District." This growth zone includes the area within a two-mile radius of existing wastewater system pumping stations. There are also areas designated as Level 3 in the region where there are environmentally-sensitive features, agricultural preservation lands, or other infrastructure issues which should be considered by state agencies and local governments when evaluating spending decisions and/or development proposals.

Although these areas may be primarily used for agriculture today, they are experiencing development pressure, and may not remain predominantly rural in the long term.

#### *Level 3 Transportation Strategies*

The following transportation strategies correspond with the characteristics of a Level 3 Area.

- Continue to invest in the regional roadway network, maintenance of the existing roadway system, and roadway safety.
- Continue to protect the capacity of major transportation corridors such as Routes 1, 113, and 13 through the Corridor Capacity Preservation Program.
- Roadway improvements that are necessary to support new development activities will not be preferred. Investments will be prioritized in Level 1 and 2 areas.

### 5.1.3.4 Level 4 Investment Area and Transportation Strategies

Agriculture continues to be a major industry in Delaware, as it was a century ago. The state's open spaces and rural vistas are critical components of the quality of life Delawareans enjoy, as are the small settlements and historic villages reflecting earlier times. Marshlands, wooded areas, and a network of waterways support an abundance of wildlife, provide recreation, and help define the Delaware scene.

Delaware's Level 4 Areas are predominantly agricultural. These areas contain agribusiness activities, farm complexes, and small settlements. They are typically found at historic crossroads or points of trade, often with rich cultural ties, such as Little Creek, east of Dover.

Level 4 Areas also boast undeveloped natural areas, such as forestlands, and large recreational uses, state and county parks, and fish and wildlife preserves. Sometimes private recreational facilities such as campgrounds or golf courses (often with associated residential developments), are situated in Level 4 Areas.

Some limited institutional uses may exist in such areas. Delaware's Level 4 Areas are also the location of scattered residential uses, featuring almost entirely single family detached residential structures. These are homes for those who value the quiet and isolation provided by locations away from more developed settings, albeit with an almost total reliance on private vehicles for every transportation need.

Delaware's Level 4 Areas also include many unincorporated communities, typically with their own distinctive character and identity. These places reflect the rich rural heritage of the state. Level 4 Areas depend on a transportation system of primarily secondary roads linked to roadways used as regional thoroughfares for commuting and trucking.

#### *Level 4 Transportation Strategies*

The following transportation strategies correspond with the characteristics of a Level 4 Area.

- Preserve existing transportation facilities and services and manage the transportation system to support the preservation of the natural environment.
- Transportation projects should only include necessary drainage, maintenance, and safety improvements and programs to manage regional highway facilities.

### **5.1.4 Comparison with other state agency plans**

#### **5.1.4.1 Delaware Economic Development Office (DEDO), Kent County Action Plan**

The Kent County Action Plan sets forth a series of goals, objectives, and recommendations that the Kent Comprehensive Economic Development Strategy (CEDS) Committee feels are appropriate to address economic development in the county and achieve their vision for the future. The Kent CEDS Committee's vision, goals, objectives, and recommendations collectively comprise the Kent County Action Plan. CEDS sets the following vision:

*"While capitalizing on and preserving its small town, agricultural, and historic characteristics and its status as the home of major government and higher-education facilities, Kent County will, through infrastructure improvement, a diverse, qualified workforce, and unified public and private stakeholders, support an economy that fosters and maintains a diverse set of industries, providing residents with quality jobs."*

The Kent County Action Plan continues with a series of goals, objectives, and recommendations that support these areas. Of most relevance to this MTP update is Goal 6, focusing on infrastructure: To provide Kent County with adequate infrastructure and transportation resources to support economic development. The Kent CEDS Committee includes the following objectives and recommendations in order to address infrastructure issues.

- Objective 6-1: Provide adequate utilities to meet the needs of business centers, residential growth areas, and existing communities that need infrastructure improvements.

- Objective 6-2: Provide an adequate vehicle, bicycle, pedestrian, freight, and public transportation network to meet the needs of business centers and residential growth areas.
- Objective 6-3: Provide adequate education infrastructure.
  - Recommendation 1: Identify infrastructure deficiencies by utilizing the work of existing organizations such as the Dover/Kent MPO where feasible, and further study where needed.
  - Recommendation 2: Utilize public-private partnerships and intergovernmental coordination mechanisms to fund needed infrastructure improvements.
  - Recommendation 3: Advocate that Kent County receives its fair share of state resources.
  - Recommendation 4: Ensure that adequate public facilities are in place for both new and existing development.
  - Recommendation 5: In coordination or partnership with the Central Delaware Economic Development Council, establish a committee to prioritize the most-needed infrastructure improvements and seek Economic Development Administration and other funding for these improvements.
  - Recommendation 6: Generate funding devoted to assessing and expanding the number of “shovel-ready” business and industrial parks within the county.
  - Recommendation 7: Coordinate with Dover Air Force Base (DAFB) and its supporting businesses to protect and support its mission.

These recommendations have been considered with the goals and projects embodied within the MTP update, related to the role transportation plays in support of economic development.

#### **5.1.4.2 Kent County Economic Development Strategy Initiative**

Published in October 2006, the objectives of this 10-year economic development strategy were to:

- Address the employment needs of current and future residents while responding to the resource requirements of its businesses.
- Understand Kent County’s economic development strengths and weaknesses from the “big picture” perspective, taking into account competition from other mid-Atlantic counties.
- Respond to a changing economy as well as unprecedented population growth by providing a strategic plan for Kent County’s economic development program.
- Identify the facilities, resources, and organizational support necessary to achieve Kent County’s goals for economic growth and development.

The transportation-related assessment focused on transportation access.

- The county has rail access and a good network of highways, but not direct access to an interstate highway. Route 1 south of Dover Air Force Base will need additional interchanges to facilitate traffic flow to employers located within the central corridor and relieve traffic on U.S. Route 13.
- The closest commercial air access is 60 minutes from Dover, in Philadelphia. There needs to be additional hangar and runway capacity within the county apart from the Dover AFB facility—particularly as security tightens in the future.

These recommendations complement projects to which Delaware has made a commitment and are included in this plan. First is the construction of grade-separated intersections on Route 1, toward the goal of creating a totally limited-access highway. The second commitment is upgrading the runway at the Delaware Air Park. Environmental studies are currently being conducted at the Air Cargo Ramp (former Civil Air Terminal), towards the goal of providing additional commercial air service facilities in Kent County.

#### **5.1.4.3 Federal Initiatives**

##### ***MAP 21***

On July 6, 2012, President Obama signed into law the Moving Ahead for Progress in the 21<sup>st</sup> Century Act (MAP-21), the first long-term transportation bill since 2005. MAP-21 provides \$105 billion in funding for surface transportation for FY 2013 and 2014. According to the FHWA, “MAP-21 creates a streamlined and performance-based transportation program that builds upon the highway, bike, pedestrian, and transit programs established in 1991.”

The key focus points of the MAP-21 legislation are listed below:

- Strengthen the National Highway System (NHS)
- Establish a performance-based program
- Create jobs and support economic growth
- Support an aggressive safety agenda
- Streamline the Federal highway programs
- Accelerate project delivery and promote innovation

MAP-21 will play a key role in transportation planning, project selection, environmental permitting and documentation, project delivery, and funding over the next two fiscal years. As of October 2012, DelDOT has begun to implement the requirements of the new legislation, in consultation with the MPO and FHWA.

*Climate Change*

The State of Delaware recognizes that climate change is a component that needs to be considered and addressed in its transportation planning efforts over the next 25 years. According to the FHWA report *Integrating Climate Change into the Transportation Planning Process*, “there is general scientific consensus that the earth is experiencing a long-term warming trend and that human-induced increases in atmospheric greenhouse gases may be the predominant cause.” From a transportation perspective, transportation’s contribution to climate change is through the greenhouse gases emitted from motor vehicles.

The State, led by DNREC, has recently convened a Transportation Focus Group, to determine the potential impacts of sea level rise on Delaware’s transportation network. DNREC has also published a report entitled *Sea Level Rise Vulnerability Assessment*, which documents agency coordination, planning tools, funding mechanisms, and regulatory assistance that may be required to address sea level rise related to climate change. In summary, the *Assessment* evaluates the impacts of sea level rise scenarios of 0.5 meters, 1.0 meters, and 1.5 meters on a variety of natural and man-made systems by the year 2100. Specifically, the *Assessment* details public safety and infrastructure components that are considered “high concern resources.” Roads and bridges are listed as high concern resources. The report details the potential impact of the various sea level rise scenarios on roads and bridges for each county. For Kent County, the projected 2100 impacts are described in **Exhibit 5.2**.

It is anticipated that the impacts resulting from climate change will play a significant role in transportation planning, project prioritization, and funding allocation in the horizon covered by the MTP. The *Statewide Long Range Transportation Plan* (2010) notes that “the impacts of global climate change with respect to policy, the environmental, and economics and those challenges to the transportation sector” should be studied in greater detail over the next 20 years.

**Exhibit 5.2: Projected Sea Level Rise Impacts – Kent County Roads (2100)**

Sea Level Rise (meters)	Miles of Inundation
0.5	16
1.0	35
1.5	55

*Source: Sea Level Rise Vulnerability Assessment*

*Performance Measures*

As indicated by the FHWA, “the cornerstone of MAP-21’s highway program transformation is the transition to a performance and outcome-based program. States will invest resources in projects to achieve individual targets that collectively will make progress toward national goals.”

MAP-21 establishes specific national performance goals for Federal highway programs, as listed below:

- Safety – to achieve a significant reduction in traffic fatalities and serious injuries on all public roads
- Infrastructure condition – to maintain the highway infrastructure asset system in a state of good repair
- Congestion reduction – to achieve a significant reduction in congestion on the NHS
- System reliability – to improve the efficiency of the surface transportation system
- Freight movement and economic vitality – to improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development
- Environmental sustainability – to enhance the performance of the transportation system while protecting and enhancing the natural environment
- Reduce project delivery delays – to reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices.

The FHWA, in consultation with DelDOT and other stakeholders, will establish performance measures for transportation conditions and performance on the Interstate and National Highway Systems. The State will report to the FHWA on progress in achieving the targets established in the performance measures. If there is inadequate progress towards reaching the targets, the State must detail specific corrective actions, or funding will be dedicated solely to addressing the deficient areas. Additional details, including a Federal Final Rule, are anticipated to be completed in FY 2014, with implementation of performance-based measures occurring in FY 2015.

DelDOT has recently added the "DelDOT Dashboard" to its web site. This feature provides a list of conditions related to a variety of DelDOT functions, including pavement condition, bridge ratings, customer satisfaction, performance measures, and transportation safety. In addition, the *Statewide Long-Range Transportation Plan* (2010) provides a list of potential performance measures, as noted in **Exhibit 5.3**.

Exhibit 5.3: Potential Performance Measures

Principle/Objective	Potential Performance Measure
System Preservation/Optimization	Miles inventoried and assessed Miles of roadway in need of repair Number of bridges in need of repair
Development	% of projects in Investment Levels 1 and 2 Number of retail jobs within 15 minutes of home Developed land per capita Acres of preserved land
Travel Opportunities and Choices	% of TE funds spent in Levels 1, 2, 3 areas % of trips by non-motorized means % of population within ½ mile of a transit route Average travel time % increase in transit ridership
Cost Effectiveness	Use Bridge Health index to schedule rehab projects % decrease in annual cost of wasted time Subsidy per transit trip % of VMT traveled on “good” rated roads Cost/benefit comparisons of proposed projects
Quality of Life	Traffic Safety Index % decrease in incident response time Access to jobs for target communities Transit time to major job centers Vehicle emissions per capita
Economic Development & Growth	Average number of jobs within 15 minutes of home Levels of congestion/reliability for freight Cost per mile of freight Number of extended breakdowns along freeways
Planning and Coordination	% of CTP implemented each year % of DelDOT Action Plan items completed Number of opportunities for public input Consistency with MPO and County plans

Source: Statewide Long Range Transportation Plan

## 5.2 Detailed Discussion of Strategies and Actions

A series of identified actions related to the fundamental strategies is summarized at the end of this chapter in **Exhibit 5.10**.

### 5.2.1 Fundamental Strategy 1: Preserve and Maintain Existing Transportation System

The first fundamental strategy of the MTP is the most cost-effective. This strategy has the highest preference to conserve capacity for the future and better manage transportation resources. To meet the purpose of this strategy, a number of actions are recommended. These actions focus on maintaining the existing transportation system and the future capacity of roads and vehicle miles traveled. These actions also need to meet air quality standards, which are more readily attained when the transportation system functions at a desired level.

#### *Summary of Recommended Actions:*

- **Maintain the existing highway system** - The existing highway system is the basic and most used part of the transportation network in Kent County. The system must be maintained to achieve the level of service indicated in land use scenarios/modeling output.
- **Corridor Capacity Preservation Program (CCPP)** - DelDOT's Corridor Capacity Preservation Program was developed to preserve the current operating conditions of arterial roadways, minimize transportation impacts of economic growth, and prevent the need to build a new road on a new alignment. Corridor preservation allows roads to be protected for their intended function, which will maintain the existing transportation system. This program is supported by emphasizing the use of local roads. Routes can be included in the program through a nomination process. Currently within Kent County, Route 1 (south of DAFB), U.S. 13, and U.S. 113 are included in the program. The Kent County *Comprehensive Plan* recommends that the County "develop a prioritized list for creating corridor capacity preservation plans for east-west transportation routes and petition for inclusion of each within the Corridor Capacity Preservation Program." The *Comprehensive Plan* further recommends that Route 6, 8, 10, 12, 15, and 300 be considered for inclusion in the CCPP. It is recommended that the County develop a prioritized list of potential new routes that could be included in the CCPP, perhaps through the MPO Technical Advisory Committee process, which could ultimately be presented to DelDOT for consideration.
- **Improve existing roadways to their functional classification** - Different types of functional roadway classifications dictate the geometric design of the facilities and are closely linked to the types of uses expected. New construction should occur in concert with the guidelines for types of facilities built and existing roads should be maintained at their specified functional classification.
- **Maintain the primary truck routes** - Primary truck routes are discussed in Chapter 3. These routes need to be maintained for the movement of goods in and through the region. They also need to be maintained in safe operational conditions at a standard that assists in the movement of goods.
- **Preserve existing rail facilities** - The location of existing rail facilities is discussed in Chapter 3. Rail freight transportation is vital for several local industries in the MPO region. However, there is no regularly-scheduled passenger service. Preserving rail facilities helps to potentially reinstate passenger rail service to Kent County.
- **Maintain existing transit and paratransit services** - Existing transit and paratransit services should be maintained with a focus to increase ridership. Maintenance should include a clean, comfortable, reliable, and

safe operating condition to attract riders to fixed-route transit services. Paratransit vehicles and systems should be provided to those who truly need it.

- **Maintain the infrastructure to support Dover Air Force Base's military mission** - Dover AFB should continue to play an important economic and strategic role in the county. The roadway network needs to be maintained to support Dover AFB's shipment of goods.
- **Maintain access to major airport hubs** - Access to air service should be maintained and made attractive to increase users. Roadways to airports should be maintained, well signed, and be part of the Intelligent Transportation System (ITS) network.
- **Preserve capacity at key routes** - As development occurs, it is crucial that capacity for future growth be preserved. New roadway or other expansion projects should not progress unless right-of-way is considered along county and state routes early on in the process.
- **Continue improving transportation network safety and security** - Work with DelDOT Operations on assuring that key network elements follow federal security guidelines. Safety standards on all roadway and intersection improvements and upgrade projects should be promoted. Recommendations of DelDOT's 2010 *Strategic Highway Safety Plan* should continue to be implemented.

## 5.2.2 Fundamental Strategy 2: Improve Management of Existing System

### *Summary of Recommended Actions:*

- **Intelligent Transportation Systems** – ITS is designed to increase the efficiency and capacity of transportation infrastructure in order to manage congestion. DelDOT assists drivers through the use of new technologies including electronic toll collection, smarter, more responsive traffic signals, real-time information, improved transit systems, and in-vehicle information systems. The continued use of ITS is anticipated to grow throughout the next 20 years in Delaware.
- **Corridor, intersection, and facility upgrades** - When other management techniques fail to provide needed capacity, resulting in a poor level of service, existing roadways should be upgraded. Upgrading a facility means that existing travel lanes may be widened, or new shoulders or turning lanes may be added, but additional travel lanes are not added. Access can also be better managed in order to preserve the roadway's capacity. As described under Fundamental Strategy 3, to develop and expand other modes of transportation, the concept of Complete Streets should be considered when existing facilities are improved.
- **Commercial corridors** - Commercial corridors are roadways that serve primarily retail and other commercial land uses. These corridors enhance access and circulation to adjacent businesses for all modes of transportation. Commercial corridors are attractive to businesses and other development. The MPO region has a variety of commercial corridors, including U.S. 13 throughout the length of the County, Route 8 in Dover, Route 10 near Camden, and U.S. 113 in Milford.
- **Increase the efficiency of existing transit services** - Fixed-route and paratransit services can operate more cost-effectively by increasing ridership and promoting a shift from paratransit to fixed-route service by those passengers able to use it. Management activities that can result in increased ridership are better advertising and

promotion, travel training to increase passenger confidence, providing passenger amenities such as protected benches and continuous sidewalks, minimizing non-revenue mileage, using equipment that fits the type and magnitude of the service being provided, and dispatching equipment more efficiently. Continued use of Google Transit is a positive benefit for transit users. In addition, buses should continue to provide adequate storage space for riders to either bring their bicycles on the bus or store them in a separate bike rack.

- **Increase usage of existing park-and-ride/park-and-pool facilities** - Existing park-and-ride and park-and-pool facilities in the MPO region can be used to a greater degree. Promotion of the facilities should be improved to make potential riders aware of the locations and services of the facilities. If feasible, facilities should be added in areas that do not have convenient access to this service. A study of more desirable park-and-ride locations in the County may be required in the near future.
- **Support Transportation Demand Management (TDM) strategies** - Techniques are available to reduce travel demand that require very little or no public investment in the transportation system. In addition to transit, these include ridesharing, flexible work hours, telecommuting, and parking management. For example, subdivision and zoning ordinances could be revised to reduce parking requirements in exchange for on-site transit amenities. Adopting the recommendations of the MPO's *Suburban and Community Street Design Study* would support transit-friendly development as well as walking and bicycling. Establishing telecommuting centers in proximity to major transportation centers could reduce long-distance commuting.

TDM strategies have proven to be effective and efficient methods to combat traffic congestion and promote accessibility. As part of a jurisdiction's comprehensive plan, TDM tactics offer low-cost and flexible transportation solutions. TDM programs can support travel for every purpose and segment of the community.

DART's RideShare Delaware provides a number of TDM suggestions for use by planners, consultants, and elected officials, to be included in comprehensive plans:

- Require TDM plans for all site plans and use permits for developments that have a negative impact on travel as determined by level-of-service triggers.
  - Execute annual travel surveys to determine travel habits and characteristics.
  - Evaluate levels of TDM activities with the results of the annual travel survey.
  - Require TDM plans for all non-work travel activities that are publicly-funded.
  - Encourage employers to offer employees transit benefit programs.
  - Initiate parking cash-out programs.
  - Implement traffic impact or parking fees.
  - It is further recommended that state and local government agencies take a lead in incorporating TDM strategies at their respective worksites as a means to lead by example.
- **Apply access management techniques** - Access management focuses on preserving and improving the operating condition of corridors by regulating the number, spacing, and design of access points. Among its

benefits are fewer and less severe accidents, increased roadway capacity, less congestion, reduced travel delay, support for economic development, improved fuel economy and reduced motor vehicle emissions, enhanced mobility of people, and improved accessibility.

Access management achieves these benefits by applying the following principles:

- Limiting the number of conflict points by designing entrances that minimize the number of turning movements.
- Separating conflict points by regulating the proximity of entrances to street intersections and establishing minimum spacing standards for interchanges, intersections, median openings, entrances, and driveways.
- Removing slower-moving turning traffic from through traffic lanes by ensuring adequate entrance widths and turning radii, using acceleration and/or deceleration lanes, using turn lanes, and designing adequate on-site circulation and parking.
- Maintaining a smooth flow of traffic between signals through proper signal spacing.

The guidelines for access management techniques are outlined in DelDOT's "Standards and Regulations for Subdivision Streets and State Highway Access."

### 5.2.3 Fundamental Strategy 3: Develop and Expand Other Modes of Transportation

#### *Summary of Recommended Actions:*

- **Expand existing DART First State transit service hours and route coverage** - Expand DART First State Transit Service and routes to include areas not currently served. The Delaware Transit Corporation (DTC) Business Plan for Fiscal Years 2008-2013 identified the following needs for Kent County:
  - Continue the Dover GoLink Project and examine its potential for other regions of Delaware.
  - Continue Saturday service and institute Sunday service.
  - Review system design and expand services to newly-developed areas.
  - Institute local transit service in Milford.
- **Support opportunities for expanded rail freight service** - Rail service is used only for inbound bulk shipments to agricultural, chemical, construction, and utility companies in Kent County. Opportunities for increased utilization of rail service should be developed and accommodated. There are major manufacturing industries that could use rail service to ship finished products. Expanding rail freight transportation opportunities supports the vision of this MTP.
- **Facilitate access to the rail system** - Complementary to expanding use of the rail system, particularly by industries not adjacent to the tracks, is the need for good intermodal connections between rail and highway facilities. Candidate sites should be considered south of Dover and in the Smyrna and Harrington areas, adjacent to the mainline track. These studies should also examine relocating the switching operations taking place along New Burton Road in Dover and in downtown Harrington.

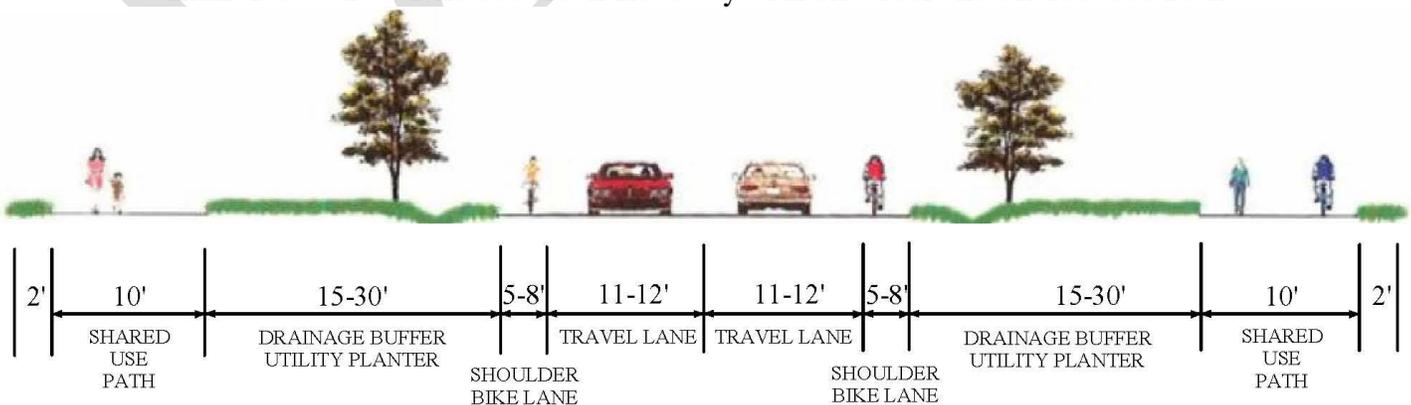
- **Support opportunities to expand aviation facilities** - Based on the Air Cargo Study, the Air Cargo Ramp has the potential to be expanded to accommodate the commercial air cargo that serves Dover AFB. This opportunity could result in non-military commercial air freight in the future. In addition, the study examined expanding the facility for use during NASCAR races. Both of these options warrant further investigation.

Improvements identified for the Delaware Airpark need to be completed to ensure its establishment as Kent County’s general aviation airport. Development around the Delaware Airpark should be compatible with airport usage and there should be efforts to purchase development rights on surrounding undeveloped properties to preserve existing and future airport operations. In addition, the addition of new hangars to accommodate additional airplanes should continue to be a priority at the Airpark.

- **Facilitate access to public/private airports in the region’s transportation system** - Kent County has several privately-owned airports that are frequently used by an active general aviation community. Concern has been expressed, however, that the continued existence of general aviation airports is entirely dependent upon the business decisions of their owners. In response to these concerns, the state has acquired Delaware AirPark, located seven miles north of Dover on Route 42. The Delaware River and Bay Authority (DRBA) has leased and operates the airport for the state. The DRBA and the state have made improvements to the runway and taxiway and installed new hangars.
- **Complete Streets** - Many benefits may be realized by planning, designing, and constructing streets that accommodate a variety of user groups. Chief among these are:
  - Providing mobility options for users of all ages and ability levels, including motorists, transit riders, walkers, bicyclists, and other users;
  - Increasing safety by reducing crashes, particularly those associated with bicyclists and pedestrians;
  - Promoting environmentally-friendly and healthy travel choices such as walking, bicycling, and transit use;
  - Producing communities that are walkable, well-connected, and livable.

As part of its Complete Streets Policy, DelDOT considers all potential user groups and abilities during the planning, design, and implementation stages of all transportation projects, even maintenance projects. Such groups include motorists, transit-riders, pedestrians, bicyclists, and others as needed (e.g., horse-drawn vehicles).

**Exhibit 5.4: Two-lane Suburban Roadway with Shoulder and Shared-Use Path**



## Recommended Complete Streets actions:

- Design facilities in concurrence with the U.S. DOT policy statement *Accommodating Bicycle and Pedestrian Travel: A Recommended Approach*. Appropriate bicycle facilities may range from on-street bicycle lanes to the provision of wide curb lanes, depending on the roadway context. Support facilities such as parking devices, transport racks on buses, signal detectors for bicycles, bicycle-friendly drainage grates, signage, over- and under-crossings, and pavement striping play an important role in many cases. Where bicycle lanes are not provided, paved shoulders should be provided with a desirable width of five feet. Rumble strips, drainage grates with openings running parallel to the direction of travel, and railroad crossings at oblique angles create hazards for bicyclists and should be avoided.
- Support the Delaware Bicycle Facility Master Plan, which calls for the establishment of specific bicycle corridors and the development of bicycle design criteria that apply to these corridors through the creation of consistent projects. The plan suggests that the development of a statewide bicycle network may help to promote local bicycle facility improvements by putting them in the context of local, regional, and statewide bicycle mobility. The DelDOT Bicycle Map is shown in **Exhibit 5.5**.
- Implement the projects in the MPO Regional Bicycle Plan
- Develop and construct additional bicycle facilities and related improvements through the development process, as stand-alone projects, and through reconstruction or reconfiguration of existing roadways.

Appropriate pedestrian facilities will generally include sidewalks, pedestrian crossings (signalized or marked), curb ramps, and street lighting. In some cases, shared-use pathways may be appropriate. Pedestrian facilities should be designed to accommodate users of all abilities. Facilities should be consistent with and support the Delaware Statewide Pedestrian Action Plan, as well as the DelDOT ADA Implementation Plan.



*Sidewalk in Harrington*

Exhibit 5.5: Kent County Bicycle Map



#### 5.2.4. Fundamental Strategy 4: Provide Additional System Capacity

*Summary of Recommended Actions:*

- **Complete committed projects** - **Exhibit 5.6** lists improvements that are programmed for funding and are included in the current 2012-2015 Transportation Improvement Program (TIP). However, only one of these projects – the West Dover Connector - provides more capacity to the network.
- **Planning Studies** - Continue with new studies and projects from which future TIPs can be established. New projects and studies are essential for a transportation system to support anticipated development within the County. Potential planning studies and transportation projects are included in **Appendix C**.

#### 5.2.5. Fundamental Strategy 5: Focus Transportation Investments

*Summary of Recommended Actions:*

- **Transportation Improvement Districts (TIDs)** - Currently, developers bear the responsibility for completing road improvements associated with their developments. Those improvements are generally identified through the traffic impact study process for larger projects. Unfortunately, smaller projects and projects in early stages have not necessarily triggered the required improvements through this process, resulting in an inequitable distribution of responsibility.

TIDs are areas where - rather than relying upon individual traffic impact studies - the County, the MPO, DelDOT, and the community will develop a more complete plan addressing a larger area for transportation improvements including road upgrades, interconnection of local roads, and bicycle, transit and pedestrian facilities. These areas support the nodal concept of the land development in that the intent is to develop a transportation network on which residents can rely upon interconnected local roads for everyday needs, whether they are for work, school, or recreation. By their design, these districts are supportive of pedestrian, bicycle and transit access in addition to automobiles because areas for transit-ready development and walkable communities are identified ahead of time. The pattern of future development can support multiple modes without every parcel in the growth area being developed to the highest allowable density.

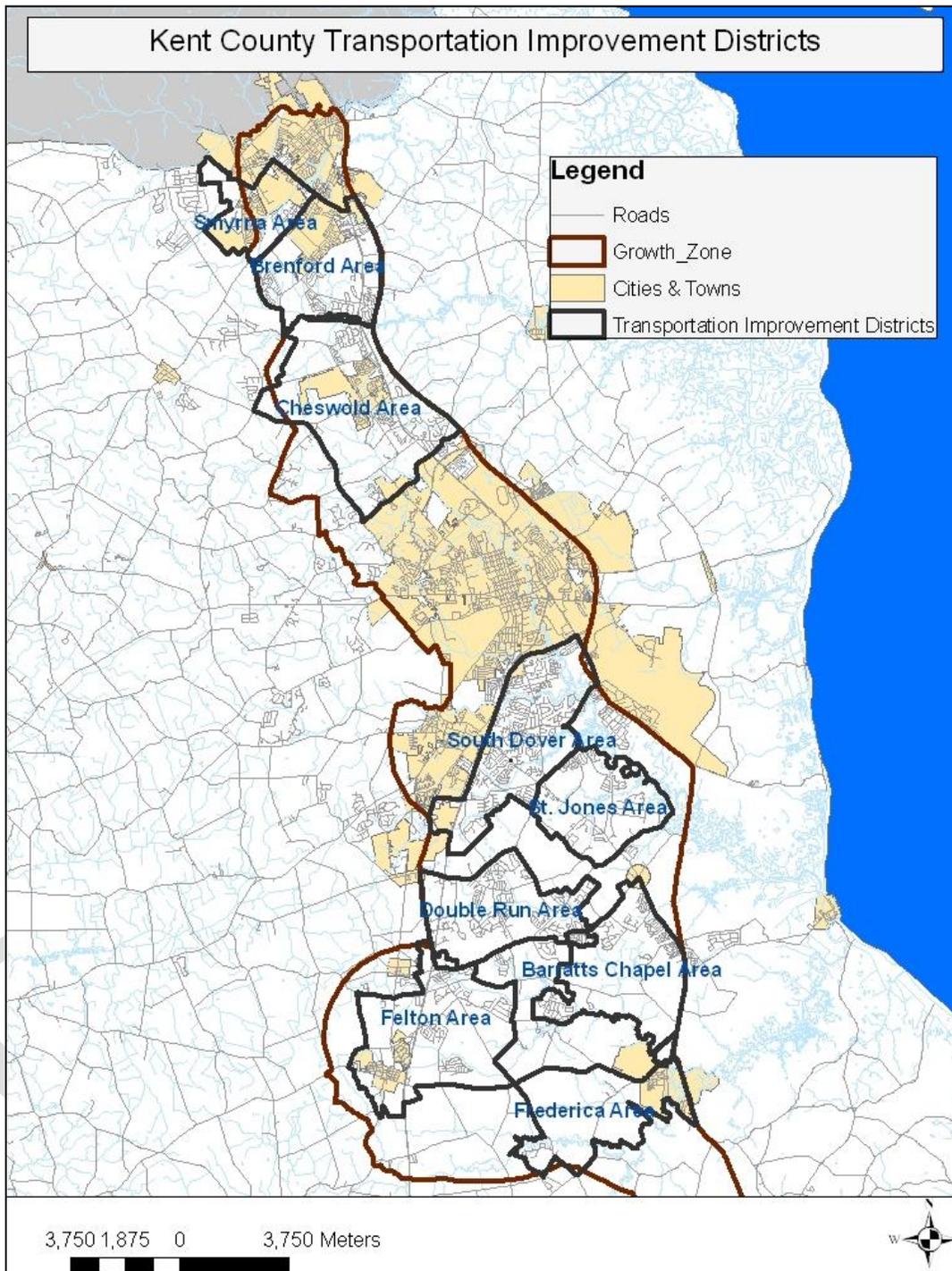
Forming such districts changes the subdivision and land development approval process in these areas in that the transportation infrastructure is identified ahead of the land use application. The existing standard of requiring traffic impact studies for individual developments should be replaced by the TID master plan, although the responsibility for funding the required improvements would remain with project developers, based upon the traffic their project creates. Proposed TIDs are shown in **Exhibit 5.7**. As of October 2012, DelDOT has prepared a revised *Standards and Regulations for Subdivision Streets and Highway Access*, which includes a detailed discussion on the TID concept. Based on the current schedule, three TID's are anticipated for formal adoption by the summer of 2013. One TID will likely be created in each County.

Exhibit 5.6: List of 2012-2015 TIP Projects

Project Name	System	Class
U.S. 13 Pedestrian Improvements, Court Street to Loockerman Street	Roadway	Arterial
Route 10/Route 15 Intersection Improvements	Roadway	Arterial
Loockerman Street/Forest Street Intersection Improvements	Roadway	Local
Highway Safety Improvement Program	Roadway	Arterial
South State Street and Sorghum Mill Road	Roadway	Collector
Route 8/Pearson's Corner Road	Roadway	Arterial
U.S. 13 at Carpenter Bridge Road	Roadway	Arterial
Glenwood Avenue (Smyrna)	Roadway	Collector
SR 1/ Route 30 Grade-Separated Intersection	Roadway	Arterial
SR 1/ Little Heaven Grade-Separated Intersection	Roadway	Arterial
SR 1/ South Frederica Grade-Separated Intersection	Roadway	Arterial
SR 1/Thompsonville Road Grade-Separated Intersection	Roadway	Arterial
SR 1/N.E. Front Street Grade-Separated Intersection	Roadway	Arterial
Carter Road, Sunnyside Road to Wheatley's Pond Road	Roadway	Collector
Barratt's Chapel Road	Roadway	Collector
West Dover Connector	Roadway	Collector
Clarence Street Extension	Roadway	Local
BR 2-016B, North Little Creek Road	Roadway	Bridge
BR 2-033B, Canterbury Road	Roadway	Bridge
BR 2-040A, School Lane (Clayton)	Roadway	Bridge
BR 2-059D, Whiteleysburg Road	Roadway	Bridge
BR 2-100A, Denneys Road	Roadway	Bridge

Project Name	System	Class
BR 2-112B, Burrsville Road	Roadway	Bridge
BR 2-114C, Todd's Chapel Road	Roadway	Bridge
BR 2-158A, Chestnut Grove Road	Roadway	Bridge
BR 2-163A, Victory Chapel Road	Roadway	Bridge
BR 2-166B, Shaws Corner Road	Roadway	Bridge
BR 2-195A, West Railroad Avenue (Wyoming)	Roadway	Bridge
BR 2-203A, Todd's Mill Road	Roadway	Bridge
BR 2-204A, Apple Grove School Road	Roadway	Bridge
BR 2-208C, Mahan Corner Road	Roadway	Bridge
BR 2-371A, Barratt's Chapel Road	Roadway	Bridge
BR 2-381A, Fox Chase Road	Roadway	Bridge
BR 2-429A, Jackson Ditch Road	Roadway	Bridge
BR 2-501, Washington Street (Milford)	Roadway	Bridge
Dover Transit Center - Building	Transit	Facilities
Dover Maintenance Building Lift Replacement	Transit	Facilities
Preventative Maintenance - Kent County	Transit	Vehicles
Transit Vehicle Expansion - Kent County	Transit	Vehicles
Transit Vehicle Expansion - Paratransit Buses	Transit	Vehicles
Transit Vehicle Replacement and Refurbishment	Transit	Vehicles
35-foot Low Floor (2 buses), Dover - Seaford	Transit	Vehicles
35-foot Low Floor (2 buses), Dover - Rehoboth	Transit	Vehicles
Dover Facility – Interior Repair	Transit	Facilities
Support Vehicles - Kent County	Transit	Vehicles

Exhibit 5.7: Transportation Improvement Districts



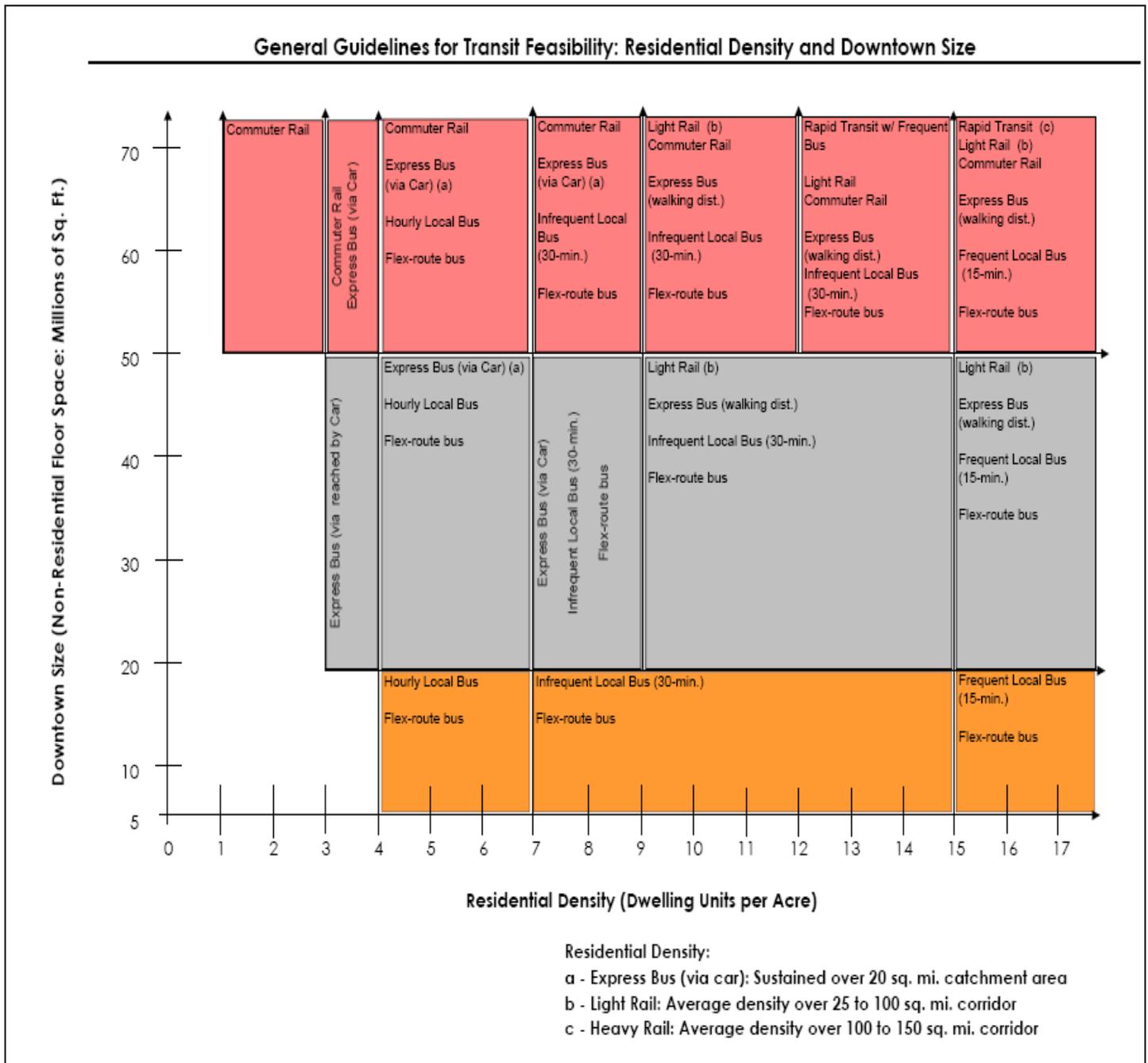
Source: Kent County Comprehensive Plan

- **Make investments and decisions according to current and planned intensity of land use and presence of infrastructure** - The framework for the strategies and actions is an investment strategy that focuses investments according to the intensity of land use anticipated in a given area and the presence of existing infrastructure. The locations of recommended improvements are located predominantly in existing communities or developing areas, which is consistent with state and county policies.
- **Coordinate land use and transportation projects for sustainability to promote established long-range land use and transportation goals** - Coordinate land use and transportation projects in a manner that promotes long-term transportation efficiency; promotes sustainability within designated areas; directs programs, services, and facilities to support the *State Strategies*; and addresses the six core principles of the plan which include development, travel opportunities and choices, cost effectiveness, quality of life, economic development and growth, and planning and coordination.
- **Identify future transit corridors to focus development in areas that may be efficiently served by transit** - Efficient operation of transit services operating at half hour intervals requires a minimum of seven residential units per acre or 20 million square feet of non-residential floor space. A table showing the intensity of land uses needed to support a variety of transit services is shown in **Exhibit 5.8**. Identification of potential transit corridors in the region can help increase the efficiency and expansion of future transit services by focusing growth into transit-ready communities. In growth areas (such as Level 1 areas), Kent County can encourage a mix of residential and nonresidential development at higher densities along these corridors to provide access to greater numbers of potential mass transit users. The existing and potential transit corridors are portrayed in **Exhibit 5.9**. This Transit-Ready Development (TRD) provides more transportation and housing choices and creates a sense of community and place.



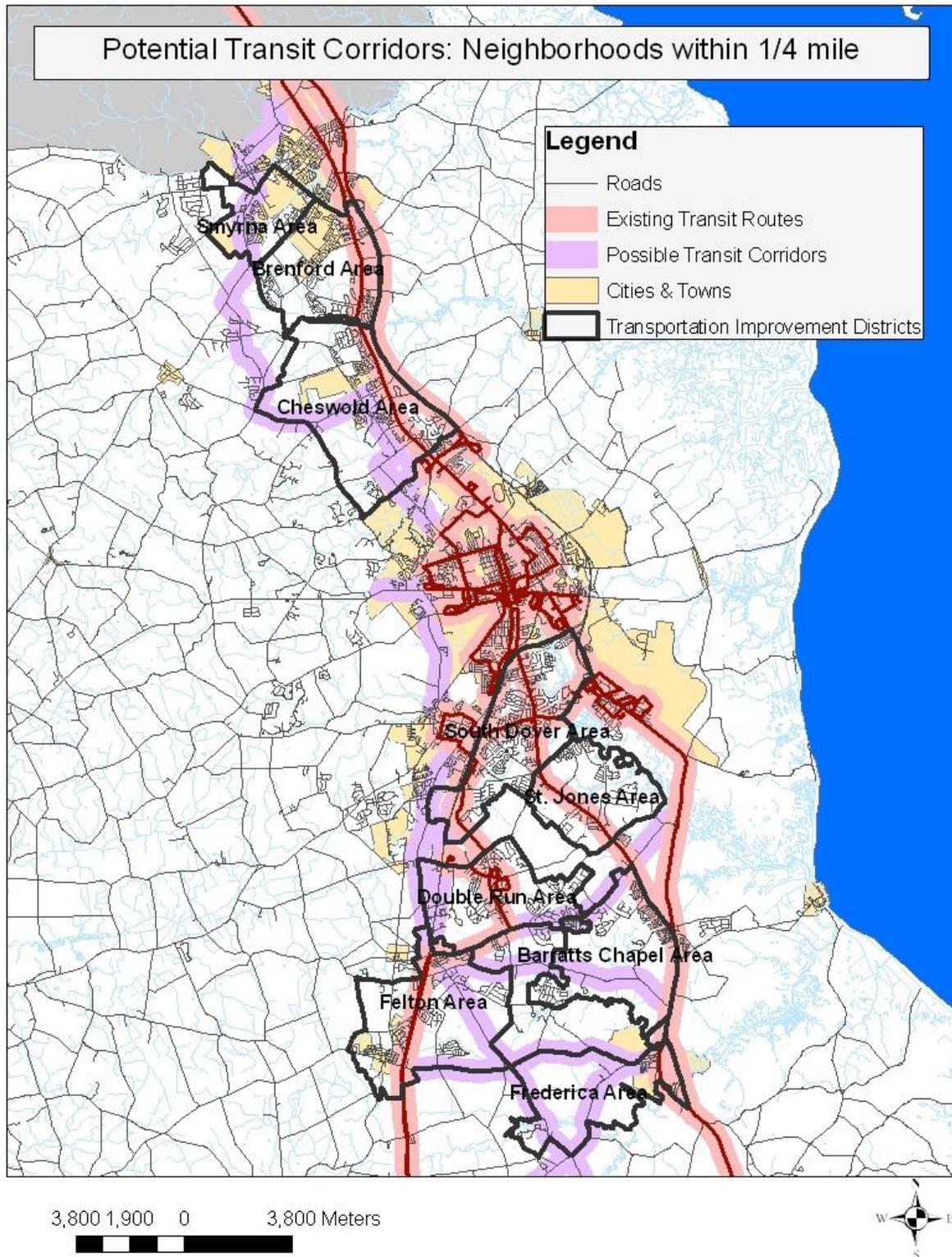
*U.S. Route 13 at Route 1 - Smyrna*

Exhibit 5.8: Guidelines for Transit Feasibility



Source: DART First State

Exhibit 5.9: Potential Transit Corridors



**5.3 Project Prioritization**

Projects being considered for inclusion in the MTP were prioritized using a numerical scoring system to reflect qualitative ratings based on transportation system data. This process is similar to what is used for TIP project scoring.

**Exhibit 5.10** shows the weights assigned to each goal. Every project was reviewed to see whether it satisfies each one of the goals below. If the project satisfied a goal, a given weight was assigned to the project shown in column “Weight.” The total score was then summed up to arrive at the “score” for each project. In the phasing analysis, these scores were considered to determine the order for phasing the projects. The recommended list of projects for which funding has not been committed is sorted in score order and it is anticipated that the projects will be funded in that order.

**Exhibit 5.10: TIP Scoring Matrix**

	<b>Weight</b>
<b>Goal 1: Strengthen the local economy</b>	<b>17</b>
Support business retention and creation of high quality employment by investing in transportation improvements?	5
Provide businesses with adequate access to labor by encouraging affordable, multimodal transportation options?	4
Reduce the expense and time delays of shipping and receiving freight by enhancing access to retail and industrial areas and improving the interconnectivity of all modes of the transportation network?	4
Ensure community cohesion by appropriately connecting developed areas with target growth areas for new development?	4
<b>Goal 2: Improve quality of life</b>	<b>15</b>
Protect, preserve, and enhance natural, historic, and cultural resources?	3
Support healthy lifestyles, choices, and opportunities?	3
Promote context sensitivity?	3
Provide aesthetic value?	3
Reduce air, water, and noise pollution?	3

<b>Goal 3: Support desired land use and effective growth management</b>	<b>22</b>
Support desired land use patterns?	5.5
Integrate land use with transportation?	5.5
Foster growth and development in desired areas?	5
Provide transportation alternatives?	6
<b>Goal 4: Improve access and mobility while ensuring the safety of all citizens</b>	<b>22.5</b>
Improve mobility?	4.5
Provide an integrated transportation system, enhancing accessibility and mobility for all?	5
Provide access to transportation services for people with special needs?	4
Improve accessibility, mobility, and safety?	4
Enhance security?	5
<b>Goal 5: Safely and efficiently transport people and goods</b>	<b>23.5</b>
Preserve and expand the existing transportation infrastructure?	3.5
Promote the use of technology to enhance the transportation system?	3.5
Ensure adequate transportation facilities?	4
Establish aesthetically pleasing and cost effective transportation facilities?	3.5
Improve efficiency and safety of the existing system?	5
Direct or focus transportation investments?	4

**Exhibit 7.1** in Chapter 7 includes the ranked projects that are included in the MTP, prioritized based on the above referenced scoring matrix.

## 6. Paying for the Transportation Plan

A plan without a strategy to pay for it is really nothing more than a wish list of projects. Fiscal constraint, proposing only projects that could realistically come to fruition given expected revenue levels, has become an important practice in creating reasonably buildable transportation plans. The practice is required of Metropolitan Planning Organizations (MPOs), with the passage of the Moving Ahead for Progress (MAP-21) legislation. The Metropolitan Transportation Plan update has been designed to meet the needs of the region within conservative budget estimates. This means that the plan has been developed by using conservative funding estimates—what is expected to be “reasonably available”—as well as realistic estimates in terms of project costs at the time the project is undertaken.

The requirement that estimated funding is reasonably available is not aimed at having planning organizations create detailed long-range budgets to accompany their long-range plans. Such budgets are done in a different part of the planning process - the 4-year Transportation Improvement Program (TIP). The TIP document is prepared annually, covers a four-year period, and is a financially-constrained document. Under MAP-21, the Metropolitan Transportation Plan must also be financially constrained. However, since it includes projects 25 years in the future, the projected availability and amount of funding is less precise.

### 6.1 Availability of Funding

Future funding is highly unpredictable and difficult to estimate. Funding depends on the decisions of the federal, state, and local government; the general state of the economy; and many other issues. For example, as gasoline prices increase influencing a decrease in vehicular travel, the potential for error in estimating gasoline tax revenue becomes greater.

Under the leadership of Secretary Shailen Bhatt, DelDOT has made a commitment to reduce its historical level of borrowing and make a concerted effort to reduce its debt. The Department’s debt currently exceeds one billion dollars. Based on its comprehensive program of reducing the amount of bonds issued, DelDOT anticipates being debt free by approximately FY 2031. This is based on current spending, borrowing, and revenue projections.

The Delaware Economic and Financial Advisory Council (DEFAC) is a state council comprising 33 individuals who develops projected revenues and expenditures for the State of Delaware. The DEFAC also develops specific revenues and expenditures as related to the Transportation Trust Fund (TTF). The TTF projections are updated bi-monthly, and provide projections on the expenditures of operations (personnel, debt, transit operations) and capital expenses (road projects, grants, transit, etc.).

The DEFAC also develops a Base Financial Plan for DelDOT, as related to capital expenses. In **Exhibit 6.1**, a summary of the Base Financial Plan is displayed, based on information developed by the DEFAC in September 2012.

**Exhibit 6.1: DelDOT Base Financial Plan**

	2013	2015	2020	2025	2030	2035	2040
<b>Total Projected Funds</b>	\$509 M	\$531 M	\$588 M	\$656 M	\$729 M	\$813 M	\$906 M
<b>Total Capital Spending</b>	\$475 M	\$389 M	\$292 M	\$327 M	\$363 M	\$357 M	\$326 M
<b>Total Operations</b>	\$242 M	\$261 M	\$315 M	\$382 M	\$464 M	\$564 M	\$688 M
<b>Total Debt Service</b>	\$116 M	\$108 M	\$88 M	\$55 M	\$10 M	\$0	\$0

*Source: DelDOT Finance (M = millions of dollars)*

The overriding financial philosophy for the future of transportation planning in Delaware is to reduce the amount of debt service. Approximately 36% of the FY 2013 DelDOT budget is dedicated to debt service, which represents the highest single item in the entire budget. The base financial plan noted in **Exhibit 6.1** is reflective of that philosophy, as total capital spending over the next 25 years is anticipated to be fairly consistent (approximately \$340 million per year) while the projected revenue is anticipated to grow significantly. The additional revenue generated will be used to pay down the debt service so the Department is debt free by approximately FY 2031.

Based on a review of DelDOT's Capital Transportation Programs (CTP) between 2006 and 2012, the average annual authorizations for the state were approximately \$510 million. The CTP is a six-year program of transportation investments that is updated yearly and presented for approval and funding by the Delaware General Assembly. The anticipated spending plan over the next 25 years projects a yearly capital program that will be significantly less than the previous 6 years (by approximately \$170 million per year).

Currently, DelDOT submits a proposed annual update to the CTP to the Governor's Council on Transportation (COT). The COT reviews proposed projects, works with the MPOs to prioritize new projects, holds public meetings and hearings, and submits the CTP to the governor and budget office by March of each year. Expenditure of CTP funds is authorized when the General Assembly passes the "Bond Bill" in June.

DelDOT coordinates closely with the MPOs to ensure that their long-range plans complement DelDOT's long-range plans, and that MPO transportation improvement plans align with the first four years of Delaware's Capital Transportation Program. The MPO's current TIP can be found at <http://doverkentmpo.delaware.gov>. **Exhibit 6.2** provides CTP authorizations for the entire state in FY 2013 through FY 2016. FY 2013 authorizations are consistent with the State's Bond Bill, which is authorized by the General Assembly. The FY 2014 – 2016 estimates were taken from information provided in October 2012 and are subject to change as part of the annual DelDOT budget authorization process.

As shown in **Exhibit 6.2**, the following conclusions can be drawn for the next four years of the transportation program in Delaware:

- The total funding for transportation is anticipated to drop significantly in FY 2014 - FY 2016.
- Federal and State funding for transit systems is anticipated to drop in FY 2015 and FY 2016.
- Federal funding levels for road systems are anticipated to remain fairly consistent over the next four years, while State funding is projected to increase slightly.
- Private funding for road systems is projected to decrease significantly in FY 2016.
- Funding levels for support systems is projected to decrease between FY 2013 and FY 2016.



*Main Street, Town of Clayton*

**Exhibit 6.2: FY 2013-2016 State Transportation Improvement Program  
Summary of Authorizations**

Category	Funding	FY2013	FY2014	FY2015	FY2016
Road Systems	State	\$98.8M	\$104.2M	\$112.5M	\$104.5M
	Federal	\$145.3M	\$175.9M	\$159.9M	\$159.1M
	Other	\$472.2M	\$175.1M	\$119.2M	\$28.9M
<b>Total</b>		<b>\$716.4M</b>	<b>\$455.3M</b>	<b>\$391.6M</b>	<b>\$292.5M</b>
Grants & Allocations	State	\$21.8M	\$12.4M	\$17.4M	\$12.4M
	Federal				
	Other				
<b>Total</b>		<b>\$21.8M</b>	<b>\$12.4M</b>	<b>\$17.4M</b>	<b>\$12.4M</b>
Transit Systems	State	\$13.3M	\$28.0M	\$5.6M	\$4.4M
	Federal	\$38.8M	\$26.1M	\$17.5M	\$15.5M
	Other	\$1.5M	\$5.1M	\$4.3M	\$1.4M
<b>Total</b>		<b>\$53.6M</b>	<b>\$59.3M</b>	<b>\$27.5M</b>	<b>\$21.4M</b>
Support Systems	State	\$39.6M	\$32.2M	\$29.5M	\$29.8M
	Federal	\$21.2M	\$12.2M	\$12.2M	\$12.2M
	Other	\$0.09	\$0.1M	\$0.1M	\$0.1M
<b>Total</b>		<b>\$60.9M</b>	<b>\$44.4M</b>	<b>\$41.7M</b>	<b>\$42.0M</b>
<b>Total CTP</b>		<b>\$852.7M</b>	<b>\$571.4M</b>	<b>\$478.2M</b>	<b>\$368.3M</b>

*Source: DelDOT Finance (M = millions of dollars)*

Note: FY 2013 authorizations are based on the Bond Bill, as authorized by the General Assembly. FY 2014 – 2016 are subject to change.

As previously demonstrated, funding for the entire state has varied year to year. Federal funding, however, has remained fairly constant and may be predicted with more accuracy. It has been the state and bond-based funding that has varied as noted in **Exhibit 6.3**.

**Exhibit 6.3: Major Sources of Transportation Revenue in Delaware FY 2010-2013**

Fiscal Year	Federal	Transportation Trust Fund	Bonds
2010	\$239.1M	\$170.3M	\$0
2011	\$200.7M	\$127.5M	\$102.9M
2012	\$213.2M	\$191.5M	\$0
2013	\$260.0M	\$214.6M	\$0

*Source: DelDOT Finance (M = millions of dollars)*

Funding allocated to the MPOs through the CTP is project-specific. Funding is usually allocated for MPO-specific projects and for statewide projects in the MPO area, which include items such as Rail Preservation, Recreation Trails, Bridge Management, Paving and Rehabilitation, Rail Crossing Safety, Traffic Calming, Transportation Management Improvements, Job Access and Reverse Commute Funding, and many others.

Similar to the calculation of the statewide authorizations, funding for MPO-specific and statewide projects was reviewed between 2007 and 2012. Based on a review of recent CTP’s, the Dover/Kent County MPO area received an estimated 15 percent of the statewide funding for the state in the past five years.

Under Federal Highway Administration (FHWA) guidance on fiscal constraint for metropolitan plans, this plan uses historical dollar allocations to the MPO, translating these into "forecast year" dollars to prepare cost projections for funding and construction costs. Based on this conservative analysis, about \$50 million is expected to be available annually to the MPO for both its portion of the statewide projects and the MPO-specific projects. Of this amount, \$18 million will be available for MPO-specific projects and \$32 million will be available for MPO’s share of statewide projects. Also, MPO-specific projects are further subdivided among roadway, transit, and other projects based upon historic commitments

The division of funding for these categories is done using the historical allocation in the ratio of:

- Roadway: 92 percent
- Transit: 5 percent
- Other: 3 percent

The ultimate analysis further assumes there will be other source of funding. For any project where part of the cost will come from sources other than those described above, such as private funding, from the Federal Aviation Administration, or any other sources, only the costs that will be paid for with state or federal funds are estimated.

**6.2 Funding Cost Comparison**

Based on all of the preceding, the MPO estimates that a total of \$1.5 billion will be available for transportation and transit uses in Kent County over the term of the MTP. This is based on the DEFAC projections to 2040, which indicate that approximately \$9.7 billion will be available in capital spending projects statewide during that time period.

The estimated funding available for Kent County projects through 2040 is distributed as follows:

- \$930 million for Statewide programs
- \$510 million for Highway projects funding
- \$45 million for Transit funds
- \$15 million for Other Planning

Exhibit 6.4 displays the projected funding distribution based on a variety of transportation funding programs and needs.

**Exhibit 6.4: MTP Period Distribution of Projected Funds**

Program	Funding Percentage
Statewide Program	62%
Highway Projects	34%
Transit	3%
Other Planning	1%

The highway projects are most influenced by DelDOT, the MPO Council, Committees, participating communities, and interested residents. The estimate of the amount of available for Kent County highway project funds for the Plan period is \$510 million. Through development of the Plan, the combined estimated amount to complete the “aspirations” list of highway projects included in Appendix C exceeds \$980 million. The projects in the “Fundable” list will be chosen in order unless there are funding or readiness issues. If the projects in the “Fundable” list in Appendix C are completed or otherwise may not move ahead, the MPO will work with projects in the “Aspirations” list.

### 6.3 Federal Funding Sources

Delaware is a unique state in that DelDOT is responsible for maintaining nearly 90 percent of the roadways. Approximately 25 to 30 percent of Delaware's roads are eligible for federal funding for rehabilitation and restoration projects. Therefore, the majority of funding for road rehabilitation is the responsibility of the state.

The MAP-21 legislation authorized continued federal aid for transportation in all states for projects, as long as certain requirements are met. The FHWA funds authorized in MAP-21 support capital transportation improvements. State funds are necessary to match the federal funds at a rate of 20 to 50 percent, depending upon the specific program.

Currently, there are several federally-funded programs being utilized to fund projects. These include the Highway Safety Improvement Program (HSIP), National Highway Performance Program (NHPP), Surface Transportation Program (STP), Congestion Mitigation and Air Quality Improvement Program (CMAQ), Railway-Highway Crossings, and Metropolitan Planning.

### 6.4 State Funding Sources

The Transportation Trust Fund (TFF) is the main source of income covering the cost of transportation infrastructure paid for by the state. At least half of the capital program must come from annual revenue, most of which is generated from tolls, concessions, motor fuel tax, Department of Motor Vehicles (DMV) fees, and interest income. Bonds sold against the revenue stream account for the remaining portion of the fund. DelDOT's resources are available to pay for operations, debt service, and capital improvements. Funding for infrastructure is listed in the Capital Transportation Program. The non-pledged revenue sources include tolls, violations and fines, escheat (transferring of property to the state in the absence of legal heirs), transit revenue, Port of Wilmington refinancing, and other dedicated transportation sources.

### 6.5 Local Funding Sources

One local source of transportation-related funding is the Kent County Levy Court Capital Projects Fund. These capital projects are funded each fiscal year as a means of enhancing the quality of life in Kent County. Some primary areas of improvement typically include enhancing recreational parkland, adding a regional library, and economic development efforts. These funds may enhance the transportation system by providing funding for projects, such as the St. Jones River Greenway, which has increased the availability of pedestrian and bicycle facilities in Kent County.

Another important potential funding option comes from the Adequate Public Facilities Ordinances (AFPO) adopted by Kent County Levy Court. The four different facilities areas include Central Water Services, Emergency Medical Services, Roads, and Schools. These were enacted to ensure that before new development is put in place, there are adequate public facilities available to serve the residents. New development needs to meet the minimum level of service established for the different facilities. If the level of service is not being met, the developer will have to provide the necessary improvements and/or contributions to mitigate the reduction of the public facility service capacity caused by the proposed development.

The developer has the ability to alter the plans, if possible, in a way that the level of service can be maintained. With the extensive growth occurring in Kent County this legislation helps ensure development decisions are made more effectively. Transportation impacts are assessed more efficiently, with developers knowing which projects will require Traffic Impact Studies for new subdivisions or site plans. Areas identified by the County as Transportation

Improvement Districts, as described in Chapter 3, or Sub-area Plans will help DelDOT determine which projects will be funded or undertaken. It will also describe whether transportation improvements will be paid by public sources or private developers. It is anticipated that TID's will be an important tool in combining private and public financial resources to ultimately develop a master plan that maximizes a developing area's transportation facilities.

## 6.6 Private Funding Sources

Private funds may be available for specific transportation projects. These funds usually are associated with one or more development projects. In some cases, a private developer may directly make or pay for transportation improvements in order to mitigate the transportation impacts of their developments. In others, they may choose to make the improvements before other development of a site. Because the availability of these funds is driven by market forces, it is impossible to predict the amount of funding that would be reasonably available from these sources during the life of the MTP.

## 6.7 Cost of the Proposed Transportation Improvements

Estimating the level of funding that will be reasonably available is only half of the equation. The cost of projects to be completed during the lifetime of the plan is the other part of the budgeting process. For the statewide projects, estimates from prior years were used to arrive at the annual costs of projects. For the MPO-specific projects, costs were estimated using amounts available from the related project studies, per-mile unit costs, and other projected information. Given that the current CTP extends to 2018, cost estimates from the document were used for those projects.

Projects included in this MTP are phased according to the level of funding expected to be available in ten-year intervals. The initial phase begins upon the plan's completion and goes through 2020, the second phase begins in 2020 and goes through 2030, and the third phase begins in 2030 and goes through 2040. In addition to these three phases, there are a number of projects for which funding may not be available until after 2040. These projects may have scored lower than those included in earlier phases due to cost and/or their relevance to the MTP's goals and objectives. Those projects are included on an "aspirations list" to be addressed if additional funding is made available before 2030. They also form the basis for future updates of the MTP.

## 7. Conformity Analysis

### 7.1 Overview

The Dover/Kent County MPO is a federally-designated Metropolitan Planning Organization. As such, the organization is required through federal regulations to show that the Metropolitan Transportation Plan conforms to the requirements of the 1990 Clean Air Act Amendments (CAAA). These air quality standards, called emissions budgets, set standards that the MPO must abide by for specific milestone years. Emissions contribute to air pollution. If the emissions generated from the projects in the transportation plan are equal to or less than these emissions budgets, then the transportation plan conforms to the State Implementation Plan (SIP).

In an attempt to reduce emissions nationwide, the CAAA developed a rating system for metropolitan area non-compliance with federal air quality standards, with levels of non-compliance ranging from “marginal” to “extreme.” The Dover/Kent County MPO region, as part of the Philadelphia-Wilmington-Trenton non-attainment area, was classified as severe. The CAAA of 1990 required severe non-attainment areas, or areas that did not meet national air quality standards, to develop a plan to show how they would achieve the National Ambient Air Quality Standard (NAAQS) for ozone by 2005. A rate-of-progress plan showing emission reductions of three percent per year between 1996 and 2005 was required to ensure that proper strategies were being employed to decrease emissions.

Effective June 15, 2004, the United States Environmental Protection Agency (EPA) finalized ground-level ozone designations under the new eight-hour ozone NAAQS. This standard was initially introduced in 1997 and is often referred to as the “1997 ozone standard.” These standards replaced the one-hour ozone NAAQS.

Transportation conformity is the technical process through which estimated emissions based on sets of future land use, roadway, and transit levels are compared to “emissions budgets”, or maximum allowable levels for certain emission compounds, as defined by the State air quality agency (DNREC). Kent County is now classified as moderate under the 1997 eight-hour ozone standard. For Kent County, the eight-hour ozone non-attainment area boundary is the same as the one-hour non-attainment boundary, comprising all of Kent County. It should be noted that Kent County is classified as being in attainment for the 2008 ozone standard. This conformity analysis is required due to 1997 standard noncompliance.

The emissions targeted for the Dover/Kent County MPO region are the two major ozone contributors, volatile organic compounds (VOCs) and nitrogen oxide (NOx). While naturally produced ozone in the upper atmosphere protects life on earth by filtering out radiation from the sun, ground-level ozone is a noxious pollutant. Ground-level ozone is the major component of smog and can damage lung tissue, worsen respiratory diseases, increase chances of pulmonary diseases, and make people more susceptible to respiratory infections. Automobile emissions are one of the major contributors to ozone formation. Both VOC's and NOx are the result of combustion within a vehicle engine. VOCs and NOx at the ground level form ozone in the presence of sunlight.

This chapter demonstrates the transportation conformity of the 2040 Metropolitan Transportation Plan to the eight-hour NAAQS.

## 7.2 Methodology

The air quality analysis conducted for the 2040 MTP uses a series of computer-based modeling techniques which are described below. These methodologies are consistent with techniques that the Dover/Kent County MPO and DelDOT have used to conduct previously required air-quality analyses and to assist DNREC with various SIP documents. They are similar to methods other state and regional agencies use to prepare air quality analysis.

### 7.2.1 Travel Demand Modeling

DelDOT maintains a travel demand model for Kent County. The model uses a variety of data about the roadway network, travel patterns and automobile ownership, as well as demographic information such as population and employment sites. The model follows the traditional four-step modeling approach that includes trip generation, trip distribution, mode split and assignment. The CUBE Voyager software package (Version 6.0.2) ran the model.

The modeling process developed for the MTP uses a 2012 base year network validated against DelDOT traffic counts. Model networks were developed for 10-year intervals, 2020, 2030 and 2040 for Kent County. The types of projects tested were corridor improvements, highway widening, and new roadway construction. Each project was added to the network in the year when improvement was completed. Socioeconomic projects such as population, employment and household size were developed for the same 10-year intervals. **Exhibit 7.1** displays the projects that were included in the travel demand modeling.



*New Developments along Brenford Road – South Smyrna*

Exhibit 7.1: Included Projects

Project Phasing						Year of Completion	Road Classification	Conformity Status	Regionally Significant?	Rationale
Capital Projects - Highway	Committed Projects	27.1	Highway Projects							
		27.1	South Governors Ave Reconstruction Webbs Lane to Water Street	2011	Arterial	Exempt		No capacity increase		
		26.4	Complete the SR 1 Little Heaven Grade Separated Intersection	2015	Arterials	Exempt		Intersection Reconstruction		
		23.2	Complete the SR 1 and SR 9 Grade Separated Intersection at DAFB	2010	Arterials	Exempt				
		23.2	Complete the SR 1 / Thompsonville Road Grade Separated Intersection (K 19)	2014	Arterials	Exempt				
		23.2	Complete the SR 1 South Frederica Grade Separated Intersection (Cedar Neck Road K 120)	2015	Arterials	Exempt				
		23.2	Complete the SR 1, North Frederica Grade Separated Intersection	2012	Arterials	Exempt				
		27.15	Complete the SR 1/NE Front St. Grade Separated Intersection	2020	Arterial	Exempt				
		29.0	Upgrade Barratts Chapel Road from SR 1 to Kersey Rd to include adequately wide travel lanes and shoulders and include bicycle, pedestrian and transit facilities as appropriate	2020	Major Collector	Exempt		Shoulders, Bike/Ped		
		29.0	Improve Carter Road from Sunnyside Road to Wheatley's Pond Road (DE 300) to include adequately wide travel lanes and shoulders and pedestrian and bicycle facilities	2020	Major Collector	Exempt		Shoulders, Bike/Ped		
	28.3	Upgrade Duck Creek Parkway from Bassett Street to Main Street in north Smyrna to include adequate travel lanes, shoulders, curbs, drainage, and bicycle and pedestrian improvements	2020	Major Collector	Exempt		Shoulders, Bike/Ped			
	28.3	Construct the West Dover Connector	2020	Minor Arterial	Non-exempt		Regionally Significant			
	25.1	Realign Wyoming Mill Road with the Village of Westover entrance and signalize	2012	Major Collector	Exempt		Realignment			
	28.3	Construct the Clarence Street Extension	2020	Local	Non-exempt		Not Regionally Significant			
	29.0	Complete gateway improvements on Forest St, including a roundabout at the intersection of Loockerman Street and Forest Street	2016	Minor Arterial	Exempt		Intersection Improvements			
	37.0	<b>DE 8: Construct recommendations from the DE 8 Concept and Operations Study</b>	2030	Minor Arterial						
	37.0	- D8: Intersection Improvements: Left turn phasing at 4 intersections	2030	Minor Arterial	Exempt		Intersection Improvements			
	37.0	- D8 : Intersection Improvements: Access to the new High School site (Carey Farm), Calvary Church site	2030	Minor Arterial	Exempt		Intersection Improvements			

**Project Phasing**

		Year of Completion	Road Classification	Conformity Status	Regionally Significant?	Rationale
37.0	- D8 : Intersection Improvements: Mifflin Road right turn and realignment of Brandywine Apts entrance	2030	Minor Arterial	Exempt		Intersection Improvements
37.0	- D8: N/S Connector Road: Chestnut Hill Road to Rt 8	2030	Major Collector	Non-exempt		Not Regionally Significant
37.0	- D8: N/S Connector Road: Rt 8 to Hazletville Rd	2030	Major Collector	Non-exempt		Not Regionally Significant
37.0	- D8 : N/S Connector Road: Connection above Road to Artis Drive	2030	Major Collector	Non-exempt		Not Regionally Significant
37.0	- D8 : Install Bicycle and pedestrian Improvements including bike lanes, designated, controlled crossings with ped signals and an alternative shared use path	2030	Minor Arterial	Exempt		Shoulders, Bike/Ped
37.0	- D8 : Connector Road behind Greentree Shopping Center between Independence Blvd and Kenton Road	2030	Local	Non-exempt		Not Regionally Significant
37.0	- D8: Realign intersection of Artis Drive with DE 8	2030	Local	Exempt		Intersection Improvements
37.0	- D8: Interconnections to enhance Rt 8 Corridor Capacity Independence south of Rt 8 to Mifflin Road, Dove View to Modern Maturity, Heatherfield/Fox Hall West & Cranberry Run,	2030	Exempt	Exempt		Intersection Improvements
37.0	- D8 : Connector Road south of Gateway West to Commerce Way	2030	Local			Below Arterial
37.0	<b>NDS: Implement the recommendations of the Concept Plan for US 13 and 113 in Dover</b>	2030	Minor Arterial			
37.0	- NDS: Construct a collector road between the Scarborough Rd. and US 13 to the East of Dover Mall and Dover Downs, to Leipsic Road (NDS is North Dover Study)	2030	Major Collector	Non-exempt		Not Regionally Significant
37.0	- NDS: Construct a collector between above and US 13 adjacent to Best Buy	2030	Major Collector	Non-exempt		Not Regionally Significant
37.0	- NDS: Realign Exit 104 toll plaza and access roads to accommodate above	2030	Other Freeway	Exempt		Intersection Improvements
37.0	- NDS: Realign Leipsic Road and connect to US 13 at Jefferic Blvd. and to the Barry Van Lines site	2030	Major Collector	Exempt		Roadway Redesign
37.0	- NDS: Construct Crawford Carroll Rd extension from behind Lowes to College Rd east of DSU	2030	Major Collector	Non-exempt		Not Regionally Significant
37.0	- NDS: Construct a local road between above and US 13 across from a realigned Dover Mall North entrance	2030	Major Collector	Exempt		Below Arterial
34.7	Upgrade Kenton Road from DE 8 to Chestnut Grove Road in Dover with shoulders, sidewalks, bike and transit facilities and closed drainage	2030	Minor Arterial	Exempt		Shoulders, Bike/Ped
33.2	Intersection Improvements to South State Street at SR 10 (Lebanon Road)	2020	Minor Arterial	Exempt		Intersection Improvements
33.2	Intersection Improvements to South State Street: Sorghum Mill Rd. to SR 10 (Lebanon Road)	2020	Minor Arterial	Exempt		Intersection Improvements
33.2	South State St. Intersection Improvements various intersections (8 total) between US 13 and SR 1	2020	Minor Arterial	Exempt		Intersection Improvements

**Project Phasing**

		Year of Completion	Road Classification	Conformity Status	Regionally Significant?	Rationale
32.4	Upgrade West Street from New Burton Road (Queen Street) to North Street in Dover to include adequate travel lanes, shoulders, curbs, drainage, and bicycle and pedestrian improvements	2020	Major Collector	Exempt		Shoulders, Bike/Ped
32.4	Construct pedestrian improvements on US 13 from Duck Creek to the north Smyrna SR 1 interchange	2030	Major Collector	Exempt		Shoulders, Bike/Ped
30.8	Upgrade Front Street corridor from Rehoboth Blvd to SR 1, Milford to include adequate travel lanes, shoulders, curbs, drainage, bicycle and pedestrian improvements and intersection improvements	2030	Major Collector	Exempt		Shoulders, Bike/Ped
30.8	Construct /fill gaps in pedestrian improvements on US 13 in Smyrna	2030	Minor Arterial	Exempt		Shoulders, Bike/Ped
30.7	Upgrade corridor of DE 14 from DE 15 to Church Street and from Washington Street to SR 1 with adequate lane width, shoulders, sidewalks and transit facilities	2030	Minor Arterial	Exempt		Shoulders, Bike/Ped
30.7	Complete upgrade of DE 300 from railroad tracks to US 13 to include sidewalks, bicycle and transit facilities and intersection improvements at Carter Rd/DE 6 area	2030	Major Collector	Exempt		Shoulders, Bike/Ped
30.7	Upgrade Irish Hill Road from SR 1 to US 13 to include adequate travel lanes, shoulders, and bicycle and pedestrian improvements	2030	Major Collector	Exempt		Shoulders, Bike/Ped
30.7	Upgrade College Road from Saulsbury Road to Kenton Road to include turn lanes where needed, shoulders, sidewalks or multi-use path, curbing and closed drainage	2030	Minor Arterial	Exempt		Shoulders, Bike/Ped
29.1	Construct a connector road from White Oak Road to DE 8	2015	Major Collector	Non-exempt		Not Regionally Significant
29.1	Upgrade Sunnyside Road from DE 300 to US 13 in Smyrna to include adequate travel lanes, shoulders, curbs, drainage, and bicycle and pedestrian improvements	>2030	Major Collector	Exempt		Shoulders, Bike/Ped
29.1	Construct/fill gaps in pedestrian facilities on US 113 between Court Street and Lafferty Lane	>2030	Minor Arterial	Exempt		Shoulders, Bike/Ped
28.5	Upgrade N. Main Street in Smyrna to include adequate travel lanes, shoulders, curbs, drainage, and bicycle and pedestrian improvements	>2030	Major Collector	Exempt		Shoulders, Bike/Ped
28.5	Upgrade Joe Goldsborough Road from Duck Creek Road to US 13 to include adequate travel lanes, shoulders and bicycle and pedestrian facilities	>2030	Major Collector	Exempt		Shoulders, Bike/Ped
28.5	Upgrade Paddock Road from US 13 to SR 1 to include adequate travel lanes, shoulders and	>2030	Major Collector	Exempt		Shoulders, Bike/Ped

**Project Phasing**

			Year of Completion	Road Classification	Conformity Status	Regionally Significant?	Rationale
27.3		bicycle and pedestrian facilities					
		Upgrade Messina Hill Road to improve safety and include adequate travel lanes, shoulders and bicycle and pedestrian facilities	>2030	Major Collector	Exempt		Shoulders, Bike/Ped
Capital Projects - Transit New Projects	<b>Transit Projects</b>						
		Expand fixed-route bus service	2010		Non-exempt		Regionally Significant
		Expand paratransit service	2020		Non-exempt		Not Regionally Significant
		Create/operate the Smyrna Shuttle	2020		Non-exempt		Not Regionally Significant
		Delaware Air Park - DRBA - Runway Extension	2020		Exempt		No New Emissions
		Implement recommendations of Civil Air Terminals Studies	2015		Exempt		Categorically
		Construct the Dover Transit Center at Water and West Streets	2020		Exempt		No New Emissions

The network horizon years used in the model were selected in accordance with EPA regulations.

**7.2.2 Emissions Factor Model**

The second major software used in this air quality analysis was MOVES 2010b (Motor Vehicle Emissions Simulator), a program developed by the EPA to calculate mobile source emission rates for each one-mile-per-hour increment up to 65 miles per hour. The factors determined the emission rates for various vehicle classifications at different speeds. Factors were needed for each of these increments because speed is a critical element in determining the total amount of emissions.

The overall structure of the MOVES program is defined by the EPA. DNREC uses the “inventory method” of this model to predict the level of emissions. DelDOT also uses the inventory method in developing countywide emissions estimates through the MOVES model. The input files for the MOVES model process were developed by DNREC and applied to DelDOT. They reflect air quality strategies anticipated according to the SIP and its amendments.

**7.2.3 Mobile Source Emissions**

The estimates of emissions for Kent County are generated jointly by DelDOT and DNREC using the MOVES inventory method. For DelDOT, a post-processor takes data produced by the CUBE model output and adjusts it

for input into the mobile emissions model. This process links the speeds and volumes generated by the travel demand model with the inventory method from MOVES.

The vehicle miles traveled and emissions data for Kent County were adjusted to be compatible with data contained in the SIP. The adjustments represent factors to account for seasonal traffic variations and to align the travel demand estimates with DelDOT’s HPMS traffic level reporting system.

**7.3 Mobile Source Emissions Data**

Both NOx and VOC emissions were tested in Kent County for 2020, 2030, and 2040 against the 2009 MOVES eight-hour ozone standard attainment plan budgets. These amounts mirror the budgets set in the latest revision to the Kent County rate of progress plan approved by the EPA. **Exhibit 7.2** summarizes this information.

**Exhibit 7.2: Emissions Data**

Year	Average Daily VMT	VOC (Tons/Day)	Budget (Tons/Day)		NOx (Tons/Day)	Budget (Tons/Day)
2012	4,649,336	2.97	3.95		7.56	9.04
2020	5,563,018	1.77			3.89	
2030	6,370,097	1.40			3.05	
2040	7,810,082	1.54			3.55	

*Source: DelDOT Planning*

Notes:

VMT = Vehicle Miles Traveled

VOC and NOx data based on tons per day emitted during a weekday, and an average of 3 summer months

**7.4 Conclusions**

The Dover/Kent County MPO Metropolitan Transportation Plan meets the conformity criteria established by the EPA and the Federal Highway Administration (FHWA). According to the analysis, the plan contributes required emissions reductions for 2020, 2030 and 2040 in comparison to the 2009 budgets established for VOCs and NOx. The modeled VOC and the NOx emission levels are below the established budgets. In addition, both the VOC and the NOx levels are projected to decrease significantly over the next 25 years.

## 8. Implementation of the Plan

This section discusses how the Dover/Kent County MPO Metropolitan Transportation Plan (MTP) update will be carried out. The MTP update is built on a foundation of coordination between local, county, and state agencies working with the MPO. The MTP is consistent with the two major Comprehensive Plans in the region, Kent County (approved October 2008) and the City of Dover (adopted February 2009). In addition, the vision, strategies, and actions noted in the MTP are in accordance with the DelDOT Statewide Long-Range Transportation Plan, which was adopted in 2010. This cooperation and coordination must continue as the plan is implemented by the agencies partnering with and members of the MPO.

This plan will be implemented through the Transportation Improvement Program (TIP) and the day-to-day activities of MPO member agencies and the MPO staff. The Department of Transportation is required to comply with the MTP. In addition, the federal agencies that approve the expenditure of federal transportation funds will base their decisions on this document.

### 8.1 Federal Compliance

To obtain federal funding, long-range planning must be in compliance with the newly adopted MAP-21 legislation, signed into law in July, 2012. This latest federal surface transportation act authorized a transportation program for the two-year period of federal fiscal years 2013 and 2014. This act covers all surface transportation programs, such as highways, highway safety, transit, freight, and transportation research.

To meet Federal metropolitan planning requirements for regional transportation plans, the following must be met:

- A plan must have a 20-year planning perspective and include air quality conformity, fiscal constraint, and public involvement.
- A plan must be updated within four years of the previous plan's completion.
- A plan must contain operational and management strategies to improve the performance of existing transportation facilities and investment and other strategies that provide for multimodal capacity increases based on regional priorities and needs, as well as propose transportation and transit enhancement activities.
- The metropolitan planning process must promote consistency between transportation improvements and state and local plans and patterns.
- A plan must contain a discussion of potential environmental mitigation activities.
- Transit operators must participate in the cooperative development of funding estimates for the financial plan.

The MPO fully considered the above listed requirements in the development of the MTP update. The Dover/Kent County MPO has prepared and will adopt this plan update by the January 2013 due date. This plan's long-range planning horizon is through 2040, slightly longer than the required 20-year planning perspective. The MPO developed a public involvement plan to accompany the MTP update, originally adopted in 2010 and revised in 2012. Fiscal constraints are applied to the proposed projects listed in this plan. An estimated planning-level budget has been developed and is applied to the actions required for this plan. All project/activity lists are limited to those prioritized projects that add up to the projected amount available.

Fundamental strategies of the plan, and applicable recommended actions, are developed to preserve and enhance the operations and management of the existing transportation system. Also, several state and local plans and patterns have been reviewed and updated with the MTP to ensure that the improvements proposed in this MTP update are consistent with their plans. Air quality is addressed through the Conformity Analysis, Chapter 7 of this plan.

In addition to being a MAP-21 requirement, the MTP update makes all efforts to include and be consistent with other state and local agency plans. Several state, county, and local plans are also updated periodically and look to the MTP to guide consistency and conformity of future transportation plans. Long-range transportation plans have been updated or are in the process of being updated, in the areas adjacent to the MPO. The Wilmington Area Planning Council [WILMAPCO – updated in 2011] oversees long-range plans in northern Delaware, and Sussex County handles southern Delaware. *State Strategies for Policies and Spending* is used to coordinate state agency planning and to support growth where appropriate.

The Office of State Planning Coordination reviews county and municipal comprehensive plans. Transportation plans described within county and municipal plans must also be consistent with the goals of state planning programs. Since future land use and growth plans go hand in hand with transportation plans, these elements of local comprehensive plans were referred to in the development of this MTP update. Additionally, transit and state bicycle and pedestrian plans were referenced, and are included, in the recommended actions.

**Plans Referenced – Regional**

City of Dover Comprehensive Plan Update (2009)
City of Milford Comprehensive Plan Update (2009)
Delaware Bicycle Facility Master Plan Report (2005)
Delaware Economic Development Office, Kent County Action Plan
Delaware Statewide Pedestrian Action Plan (2007)
Delaware Transit Corporation (DTC) Business Plan (2007)
Kent County Comprehensive Plan (2008)
Kent County Economic Development Strategy Initiative
MPO Regional Bicycle Plan (2011)
Statewide Long Range Transportation Plan (2011)
Strategies for State Spending and Policies (2010)
Town of Smyrna Comprehensive Plan (2005)
WILMAPCO Regional Transportation Plan (2011)

The eight planning factors required by MAP-21 are:

- Support Economic Vitality
- Increase Accessibility and Mobility
- Protect the Environment, including promote consistency with planned growth and economic development patterns
- Enhance Modal Integration
- Promote Efficient System Management
- Preserve the Existing System
- Increase Safety
- Increase Transportation Security

Access, safety, security, and mobility are included as a theme of this MTP update. The framework of the MTP is based on five fundamental goals that embody the planning factors, as discussed in Chapter 5. These fundamental goals are developed to guide growth for infrastructure investments and planning. **Exhibit 8.1** summarizes the planning factors that must be met along with how they are met through the specific goals. The table also demonstrates how the evaluation criteria are linked to the MAP-21 required factors during the TIP project selection process.

**Exhibit 8.1: MAP-21 Federally-Required Planning Factors**

		Dover/Kent County MPO TIP Project Scoring	
Federally-Required Planning Factors	How The 2040 MTP Implements The Factors	Description	Weight
Support Economic Vitality	Primarily addressed by the actions as part of <b>Goal 1</b> – Strengthen the Local Economy.	Extent to which project supports worker and customer access to major commercial sites, freight, major business/industrial sites, and trans-shipment points, and supports economic development.	17
Protect the Environment (including promoting consistency with planned growth and economic development patterns)	Primarily addressed by the actions as part of <b>Goal 2</b> – Improve quality of life, and <b>Goal 3</b> – Support desired land use and effective growth management.	Extent to which the project supports policies or is derived from an approved county or municipal comprehensive plan or a special transportation study or bike plan.  Extent to which project avoids problems related to drainage, noise, cultural/historic areas, and ecologically-sensitive areas.	16  5

Increase Accessibility and Mobility	Primarily addressed by the actions as part of <b>Goal 2</b> – Improve quality of life, and <b>Goal 3</b> – Support desired land use and effective growth management, and <b>Goal 4</b> – Improve access and mobility while ensuring the safety of all citizens, and <b>Goal 5</b> – Safely and efficiently transport people and goods.	Extent to which project has disproportionately high and adverse effects on minority and low-income populations or disproportionately benefits populations not protected under Title VI of the Civil Rights Act of 1964.	4
		Extent to which project supports shifting people/goods to rail or bus, or supports more efficient operation of rail or bus.	6
Enhance Modal Integration	Primarily addressed by the actions as part of <b>Goal 2</b> – Improve quality of life, and <b>Goal 3</b> – Support desired land use and effective growth management, and <b>Goal 4</b> – Improve access and mobility while ensuring the safety of all citizens, and <b>Goal 5</b> – Safely and efficiently transport people and goods.	Extent to which project incorporates/supports/enhances bicycle/pedestrian access or use as well as transit.	8
Preserve the Existing System	Primarily addressed by the actions as part of <b>Goal 3</b> – Support desired land use and effective growth management.	Extent to which project supports and implements the goals of the MPO's long-range transportation plan.	8
Increase Safety	Primarily addressed by the actions as part of <b>Goal 4</b> – Improve access and mobility while ensuring the safety of all citizens, and <b>Goal 5</b> – Safely and efficiently transport people and goods.	Extent to which project location represents a safety hazard/solution for motorists, pedestrians, bicyclists and/or transit users.	22
Increase Transportation Security	Primarily addressed by the actions as part of <b>Goal 4</b> – Improve access and mobility while ensuring the safety of all citizens, and <b>Goal 5</b> – Safely and efficiently transport people and goods.	Extent to which project supports and implements the goals of the MPO's long-range transportation plan.	6
Promote Efficient System Management	Primarily addressed by the actions as part of <b>Goal 5</b> – Safely and efficiently transport people and goods.	Extent to which a project fills a gap or eliminates functional bottlenecks/pinch points. Project has been identified in the congestion management system.	6
		Extent to which a project can be adequately maintained after completion.	2

The five areas of emphasis contained in MAP-21, in addition to the eight federal planning factors described in the previous table, are identified in **Exhibit 8.2** below.

**Exhibit 8.2: MAP-21 Federally-Required Emphasis Areas**

EMPHASIS AREA	HOW THE 2040 MTP IMPLEMENTS THIS PLANNING EMPHASIS AREA
Consideration of Safety and Security in the Transportation Planning Process	This area is met through Goal 5 – Safely and efficiently transport people and goods.
Linking the Planning and NEPA Process	The Plan has few elements that are of a scale to trigger NEPA review requirements. The West Dover Connector has undergone a NEPA review. Each study includes consideration of NEPA requirements and land use best practices in the study definition and evaluation. The process of developing recommendations for these studies includes data collection, analysis, development of alternatives, and the identification of a preferred alternative. It is intended that the analyses and decisions occurring during this project can carry through to the NEPA process, as appropriate.
Consideration of Management and Operations within the Planning Process	The MPO includes a matrix of Goals and related Performance Measures in this Plan in Chapter 5. DelDOT is in the process of developing performance measures to monitor the state of the state-wide system on an annual basis.
Enhancing the Technical Capacity of the Planning Process	The MPO has enhanced our Technical Capacity in Planning for this MTP. The MPO used in-house certified planners to both complete the Plan and to develop the procedures and metrics to assess our progress toward meeting its goals.
Coordination of Human Services Transportation	Led by DTC; primarily addressed by the actions described in Chapter 1 as part of “Goal 4 – Improve access and mobility while ensuring the safety of all citizens.”

**8.1.1 Year-of-Expenditure Dollars**

When the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) released their Statewide and Metropolitan Planning Rule, it included requirements for long-range transportation plans. Under the rule, financial constraint of the plan must be demonstrated in “Year-of-Expenditure” dollars, or YOE dollars. The rationale for this rule is that long-range estimates of transportation costs have understated the deficit between costs and revenues. Therefore, converting all costs and revenues to YOE dollars would theoretically present a more accurate picture of costs, revenues, and deficits associated with a long-range transportation plan.

The financial data reflects the YOE cost for each project. The total cost for each project has been increased to include inflation for the time period in which the project is to be implemented. All projects in the first 10 years of the plan were placed into YOE estimates based on anticipated project costs. Outside of the first 10 years of the MTP, most projects do not have a specific implementation date and are grouped, with some exceptions, into the 2040 time period. **Appendix C** provides a detailed list of the MTP projects with estimated project costs.

### 8.1.2 Environmental Mitigation

Identifying key environmental resources at the planning stage plays an essential role in impact avoidance or minimization. This early identification provides better proposal scoping, analysis, and delivery. Municipal and county planning efforts previously referenced have been helpful in identifying the environmental protection considerations and potential impacts of proposed transportation improvements. Similarly, many environmental resources have been identified at the municipal and county levels in their respective comprehensive plans and other planning documents that were prepared in concert with this MTP update. This identification and analysis of regional environmental resources provides an ecosystem-based approach to address the potential environmental impacts of improving the overall transportation system.

General ideas of how mitigation can be carried out through various goals of this plan are referenced in the recommended actions of this plan. Adhering to growth plans to preserve open space and agricultural uses is one way this plan would integrate land use and transportation. The state Department of Agriculture has a very successful Agricultural Lands Preservation Program, which to date has permanently preserved over 36,000 acres of farmland in Kent County. This represents the highest amount of permanently preserved farmland among the three counties. Minimizing environmental impacts of transportation improvements is a goal for all recommended actions in this plan. This MTP update and area comprehensive plans identify strategies and goals that conserve resources, including agriculture, open space, farmland, and natural resources.

Specific mitigation strategies would be preliminary at this point of the long-range planning process. A detailed environmental analysis would be conducted for each project, as necessary.

Potential environmental mitigation activities may include:

- Avoiding impacts.
- Minimizing a proposed activity/project size or its involved area.
- Restoring temporary impacts to pre-alteration state.
- Precautionary and/or abatement measures to reduce construction impacts.
- Providing a suitable replacement or substituting environmental resources of equivalent or greater value, on- or off-site that could even result in a net benefit as a last resort.
- Considering revisions to zoning and subdivision ordinances to further protect wetlands, natural areas, flood hazard areas, woodlands, riparian areas, forest and other natural corridors, and watersheds.
- Incorporating measures to protect environmentally sensitive and biologically diverse areas of the Dover/Kent County MPO region.

### 8.1.3 Visualization

Exhibits have been used throughout this document to illustrate the components of the MTP update. The exhibits convey how the different elements the planning process considered to create a unified plan. Exhibits are also used to show the nature and extent of the existing conditions in the Dover/Kent County MPO area and the relevant plans. The illustrations also identify the locations of the recommended actions and their relation to other projects within the Dover/Kent County MPO. A listing of all exhibits is provided in the beginning of this document.

8.1.4 Summary

Exhibit 8.3 provides a summary of how this MTP update meets the requirements set forth by the Federal government for long-range transportation planning.

**Exhibit 8.3: Relationship of the Metropolitan Transportation Plan Update to MAP-21**

MAP-21 Requirement	How the 2040 MTP Meets Requirement
Plan Cycle – Plans shall be updated every four years in air quality non-attainment and maintenance areas.	This MTP is an update to the previous version completed in January 2009.
Fiscal Constraint	A determination of estimated funds available during the term of the Plan is discussed in Chapter 7. This Plan is fiscally constrained. Projects to be listed in the FY 2012-2015 TIP will be fiscally-constrained to be implemented.
Transportation System Security – Safety and security are to be addressed as separate factors.	Projects are evaluated separately in terms of how they increase safety and transportation security. New strategy related to security has been incorporated into the plan.
Environmental Mitigation – Plans must include a preliminary discussion of the types of potential environmental mitigation activities, to be developed in consultation with federal, state, and tribal wildlife, land management, and regulatory agencies.	Preliminary and potential avoidance and mitigation strategies are discussed in Chapter 5. Specific environmental mitigation will be carried out with specific projects, as determined through a collaborative process.
Consultations – MPOs must consult “as appropriate” with “state and local agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation” in developing long-range transportation plans.	Development of this plan was completed through the support of DelDOT and bi-monthly meetings with the Technical Advisory Committee (TAC) and Public Advisory Committee (PAC).
Consistency of Plan with Planned Growth and Development Plans – Revises the previous planning factor related to environmental factors to add promoting consistency between transportation improvements, and state and local planned growth and economic development patterns.	The Plan is consistent with local comprehensive plans. Kent County TIDs, <i>State Strategies for Policies and Spending</i> , and growth plans in comprehensive plans are addressed in Chapter 5. The MTP is consistent with the <i>Statewide Long-Range Transportation Plan</i> .

**Exhibit 8.3: Relationship of the Metropolitan Transportation Plan Update to MAP-21**

MAP-21 Requirement	How the 2040 MTP Meets Requirement
<p>Operational and Management Strategies – Plans shall include operational and management strategies to improve the performance of the existing transportation facilities to relieve vehicular congestion and maximize the safety and mobility of people and goods.</p>	<p>This plan has the two fundamental strategies of: “Preserve and Maintain the Existing Transportation System while improving Safety and Security of the Existing Transportation System” and “Improve the Management of the Existing Transportation System.” Implementation strategies are included that will meet these objectives.</p>
<p>Public Involvement – MPOs must develop and utilize a “Participation Plan” that provides reasonable opportunity for interested parties to comment on the content of the plan and TIP.</p>	<p>The Public Participation Plan was developed and adopted in March 2010 to promote an affirmative policy to encourage participation. It has been updated and will be adopted at the end of 2012.</p>
<p>Visualization Techniques in Plans and TIP Development – As part of the transportation plan and TIP development, MPOs shall employ visualization techniques.</p>	<p>Visualization techniques, charts, tables, and GIS-based maps, are used throughout the document. The MPO created a Power Point presentation and has presented it at local government or community meetings and events. The MPO staff made the presentation for several groups during the comment period.</p>
<p>Publication of Plans and TIP – MPOs shall publish or otherwise make available for public review the transportation plans and TIPs “including (to the maximum extent practicable) in electronically-accessible formats and means, such as the World Wide Web”.</p>	<p>This plan, both draft and final, will be available on the MPO Web site when completed. Printed copies will be available at public libraries and government offices in the County. The public had an opportunity to make comments during preparation and will have a chance to make comments on the MTP update during and after the comment period.</p>
<p>Air Quality Conformity</p>	<p>The MPO area is classified as non-attainment for ozone under the Clean Air Act Amendments of 1990 (CAAA). Conformity analysis is discussed in Chapter 7. The MTP meets the requirements for air quality for a Plan in a non-attainment area.</p>

## 8.2 The Planning Process for Specific Projects

This MTP update represents a feasible set of transportation improvements for the region; however, inclusion of a project in the plan does not guarantee that it will happen. Major construction and management projects go through an MPO prioritization process that includes consideration of project merits as they relate to Federal requirements, public review, programming decisions by DelDOT, and prioritization by the Council on Transportation. Finally, review by the Legislature is required before state or federal funding is allocated. All state agencies are required to follow Delaware's *Strategies for Policies and Spending* when considering locations for capital improvement projects. Once a project is initiated, it must be scoped in order to determine the specific actions that will be taken and the environmental permits that will be required. Next, it is designed and right-of-way is acquired if necessary. If a project is federally-funded or regionally-significant, it must appear in the MPO's TIP.

For proposed improvements, project planning and environmental studies will be performed to determine the best problem-solving alternatives. Depending on the outcome of data gathered to this point and public input, the best alternative may be the "no-build" option. If a project is warranted, it will be refined through preliminary and final design phases, and then constructed. Public involvement continues to be a part of each step of the planning process. Community input will be essential to ensure that the county's transportation system meets the needs of its residents.

Smaller scale projects that are undertaken as part of statewide programs are not subject to the same process. For some of these programs, such as bridge repair or pavement management, state and/or federal criteria exist for setting project priorities. For other categories, such as non-motorized transportation, the state has criteria for project selection. Regardless of the priority process used, all projects show a direct relationship with this MTP update.

The MPO depends on coordination with state and local government and the private sector to make this plan update a reality. State, county, and municipal zoning dictates where development is anticipated in the future. Transportation funding is dictated by legislation at both the state and federal levels. Through the publication of this MTP update, the Dover/Kent County MPO provides tools for decision-makers to make informed choices about projects and policies that advance the improvement of the transportation system. The public is included in making these choices identified in the MTP. To build a partnership, regular public meetings are held, attendance at community events is encouraged, and the MPO participates in events and meetings hosted by related entities. A newsletter and the MPO's Web site provide current information to the community on the implementation of the MTP.

## 8.3 Staging the Improvements

All projects that are listed in this plan could not be completed at the same time. Some projects are suggested for the short term while others are listed with the intention for future completion. Funding limitations and the planning process require that transportation improvements be prioritized and staged within constraints of a budget. The projects could be staged in phases for completion. Short-term projects would be completed among the first phases, while medium- and long-term projects would be among subsequent phases. Projects listed in the TIP and projects already underway are the immediate priority. The number and estimated cost of projects identified through this process far exceeds the amount anticipated to be available. These unfunded projects are included in the MTP as an "Aspirations List". Chapter 6 provides additional details on the project list and phasing.

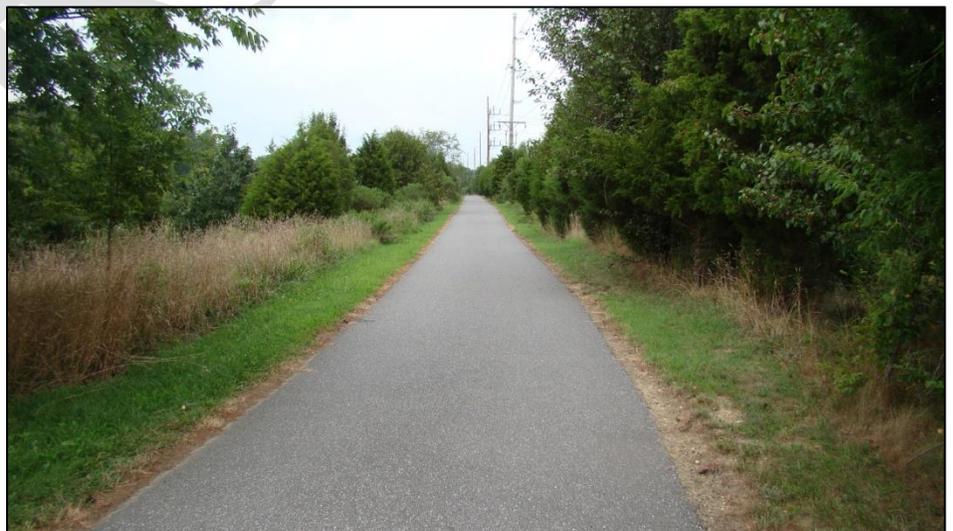
### 8.4 Updating the Plan

The Dover/Kent County MPO Metropolitan Transportation Plan is an active document. To meet Federal requirements, a long-range plan has to be updated every four years. The previous plan was completed in 2009. The public involvement process will be used for each plan update. Plan updates could include any or all of the following:

- Changing the prioritization of proposed improvements
- Suspending proposed improvements from consideration
- Adding proposed improvements for consideration



*Main Street – Smyrna*



*Isaacs Branch Trail - Dover*